VOL. XXXI. Title-page and Index [Issued OCTOBER, 1953]

THE REVIEW

OF

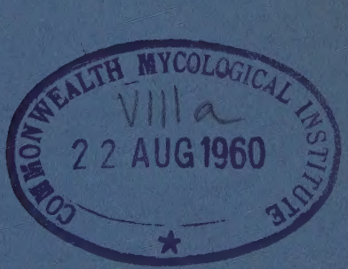
APPLIED MYCOLOGY

ISSUED BY THE COMMONWEALTH
MYCOLOGICAL INSTITUTE

THE COMMONWEALTH MYCOLOGICAL INSTITUTE
KEW, SURREY

Price 8s. net

All Rights Reserved



COMMONWEALTH MYCOLOGICAL INSTITUTE

EXECUTIVE COUNCIL: E. Marsden, C.M.G., C.B.E., M.C., F.R.S., D.Sc. (*Chairman*), New Zealand; W. F. C. Morton (*Vice-Chairman*), Union of South Africa; C. H. M. Wilcox, M.A., United Kingdom; Lieut.-Col. J. G. Robertson, B.S.A., F.R.S.A., Canada; J. E. Cummins, M.Sc., F.R.I.C., Australia; H.E. The High Commissioner for India; S. D. Mufazzar, M.A., M.Sc., Ph.D., F.R.S.A., Pakistan; J. E. C. Coventry, B.A., M.Sc., Southern Rhodesia; H.E. The High Commissioner for Ceylon; C. E. Lambert, Colonial Territories.

Secretary: Sir Herbert Howard.

STAFF: *Director and Editor*: S. P. Wiltshire, M.A., D.Sc. *Assistant Director*: H. A. Dade, A.R.C.S. *Mycologist*: E. W. Mason, M.A., M.Sc. *Senior Assistant Mycologist*: G. R. Bisby, Ph.D. *Sub-Editors*: Grace M. Waterhouse, M.Sc.; D. Jean Stamps, Ph.D. *Assistant Mycologists*: M. B. Ellis, Ph.D.; C. Booth, M.Sc.; Agnes H. S. Brown, Ph.D.

SULPHATE OF COPPER

98/100% PURITY

CRYSTALS AND POWDER

FUNGUS DISEASES

Control and prevent by spraying with Bordeaux Mixture made with the best quality Sulphate of Copper.

COPPER DEFICIENCY

Sulphate of Copper in powder form is also widely used for the correction of Copper Deficiency of the soil and in animal nutrition.

BRITISH SULPHATE OF COPPER ASSOCIATION LTD.

1 GREAT CUMBERLAND PLACE, LONDON, W.1

Telegrams: Britsulcop, Wesphone, London

Telephone: Paddington 5068/9

A DICTIONARY OF THE FUNGI

By G. C. AINSWORTH and G. R. BISBY

Fourth edition in preparation

AN INTRODUCTION TO THE TAXONOMY AND NOMENCLATURE OF FUNGI

By G. R. BISBY

Second edition now available

vii+143 pp., cloth, 10*s.* or *U.S.* $1.40, post free.

MIMEOGRAPHED PUBLICATIONS OF THE COMMONWEALTH MYCOLOGICAL INSTITUTE

No. 6. Generic names of fungi proposed for rejection. *By G. R. Bisby*, 59 pp., 1949. *Price* 3*s.* 6*d.*
No. 7. Bibliography of systematic mycology, 1948. 34 pp., 1949. *Price* 2*s.*
No. 8. Bibliography of systematic mycology, 1949. 28 pp., 1950. *Price* 2*s.*
No. 9. Bibliography of systematic mycology, 1950–1951. 42 pp., 1952. *Price* 3*s.*
No. 10. Bibliography of systematic mycology, 1952, *Price* 3*s.* (in the Press).

PRINTED IN GREAT BRITAIN AT THE UNIVERSITY PRESS, OXFORD, BY CHARLES BATEY, PRINTER TO THE UNIVERSITY

THE REVIEW

OF

APPLIED MYCOLOGY

Vol. XXXI

ISSUED BY THE COMMONWEALTH
MYCOLOGICAL INSTITUTE

THE COMMONWEALTH MYCOLOGICAL INSTITUTE
KEW, SURREY

1952

All Rights Reserved

COMMONWEALTH MYCOLOGICAL INSTITUTE

EXECUTIVE COUNCIL

E. MARSDEN, C.M.G., C.B.E., M.C., F.R.S., D.SC. (*Chairman*), New Zealand; W. F. C. MORTON (*Vice-Chairman*), Union of South Africa; C. H. M. WILCOX, M.A., United Kingdom; LIEUT.-COL. J. G. ROBERTSON, B.S.A., F.R.S.A., Canada; J. E. CUMMINS, M.SC., F.R.I.C., Australia; H.E. The High Commissioner for India; S. D. MUFAZZAR, M.A., M.SC., PH.D., F.R.S.A., Pakistan; J. E. C. COVENTRY, B.A., M.SC., Southern Rhodesia; H.E. The High Commissioner for Ceylon; C. E. LAMBERT, Colonial Territories. *Secretary*: SIR HERBERT HOWARD.

STAFF

Director and Editor: S. P. WILTSHIRE, M.A., D.SC. *Assistant Director*: H. A. DADE, A.R.C.S. *Mycologist*: E. W. MASON, M.A., M.SC. *Senior Assistant Mycologist*: G. R. BISBY, PH.D. *Sub-Editors*: GRACE M. WATERHOUSE, M.SC., D. JEAN STAMPS, PH.D. *Assistant Mycologists*: M. B. ELLIS, PH.D., C. BOOTH, M.SC., AGNES H. S. BROWN, PH.D.

COMMONWEALTH AGRICULTURAL BUREAUX LIAISON OFFICERS

UNITED KINGDOM: A. B. BARTLETT, Ministry of Agriculture and Fisheries, 1-4 Cambridge Terrace, Regent's Park, London, N.W. 1.

CANADA: H. L. TRUEMAN, B.S.A., Director, Administrative Services, Department of Agriculture, Ottawa, Ontario, Canada.

AUSTRALIA: W. IVES, ESQ., Assistant Secretary, Commonwealth Scientific and Industrial Research Organisation, 314 Albert Street, East Melbourne, C.2, Victoria, Australia.

NEW ZEALAND: N. A. MARRIS, M.SC., Department of Scientific and Industrial Research, Wellington, C. 1, New Zealand.

UNION OF SOUTH AFRICA: S. POTGIETER, c/o Secretary for Agriculture, Agriculture Buildings, P.O. Vallis, Pretoria, Transvaal, Union of South Africa.

INDIA: SARDAR BAHADUR SIR DATAR SINGH, Vice-Chairman, Indian Council of Agricultural Research, Raisina Road, New Delhi, India.

PAKISTAN: TASKHIR AHMAD, PH.D. (Cantab.), Director, Department of Plant Protection, Government of Pakistan, Karachi.

SOUTHERN RHODESIA: DR. J. C. F. HOPKINS, D.SC., A.I.C.T.A., Department of Agriculture and Lands, Salisbury, Southern Rhodesia.

CEYLON: D. C. L. AMERASINGHE, B.A. (Hons.), (London), Assistant Secretary, Ministry of Food and Agriculture, Colombo, Ceylon.

COLONIES: SIR GEOFFREY CLAY, K.C.M.G., O.B.E., M.C., Agricultural Adviser to the Secretary of State, Colonial Office, Sanctuary Buildings, Great Smith Street, London, S.W. 1.

REPUBLIC OF IRELAND: S. M. BREATHNACH, Department of Agriculture, Dublin.

ANGLO-EGYPTIAN SUDAN: The Chief of the Research Division, Department of Agriculture and Forests, Wadi Medan, Sudan.

PRINTED IN GREAT BRITAIN AT THE UNIVERSITY PRESS, OXFORD
BY CHARLES BATEY, PRINTER TO THE UNIVERSITY

ERRATA

VOLUME XXX

page 217 line 12 delete '[*Verticillium cinerescens*: cf. ibid., 29, p. 606]'

VOLUME XXXI

33	5	for '*P.*' read '*Puccinia*'
40	15	for 'arsenite' read 'arsenate'
77	44	for 'ibid.' read '*R.A.M.*'
85	29	for '*P.*' read '*Pleospora*'
92	39	for '*Daedalia*' read '*Daedalea*'
124	19	for '*poae-hemoralis*' read '*poae-nemoralis*'
148	21	for '*polygala*' read '*polyphaga*'
182	13	for '(F.P.)' read '(E.P.)'
207	43	for 'ibid.' read '*R.A.M.*'
208	39	for '*spiculosporum*' read '*spiculisporum*'
249	5 and 9	before 'cu. ft.' insert '100'
266	39	for 'a strain of bean mosaic virus' read 'a strain of lucerne mosaic virus'
298	33	for '*F.* [*G.*] *moniliforme*' read '*F. moniliforme* [*G. fujikuroi*]'
299	51	for 'Tainan, Formosa' read 'Taiwan (Formosa)'
331	45	for '1.025' read '1025'
355	4	for '*acacia-senegalae*' read '*acaciae-senegalae*'
458	41	for 'loc. cit.' read 'ibid., 31, p. 295'
539	27	for 'Kamal' read 'Karnal'
541	4	for '*Shizanthus*' read '*Schizanthus*'
555	43	for '*penicilloides*' read '*penicillioides*'
591	28	for 'Siefenersatzmitteln' read 'Seifenersatzmitteln'

INDEX OF AUTHORS

	PAGES
A., F. W.	491
Abbott, E. V.	297, 352
Abel, A. L.	68
Abhankar, S. G.	5
Abraão, J.	383
Abrego, L.	302
Acker, R. F.	395
Adam, D. B.	429, 497
Adams, D.	243
Adsuar, J.	256, 339
Afanasiev, M. M.	467, 469
Agarwala, S. C.	466
Aggéry, B.	325
Ahlgren, H. L.	65
Aldrich, D. G.	62, 114
Aldrich, K. F.	638
Alexander, L. J.	34, 213
Allen, E. F.	538
Allen, F. W.	333
Allen, O. N.	449
Allison, J. L.	19, 332
Allmendinger, D. F.	554
Alvaro Montaldo, B.	573
Alves, S.	418
Ames, L. M.	136
Anderegg, J. W.	218
Andersen, A. L.	3, 365
Andersen, W. P.	468
Anderson, A. A.	29
Anderson, B. I.	445
Anderson, C. W.	19, 166, 435
Anderson, J. A.	279
Andrade, A. C.	391
Andrén, F.	80, 108
Andrews, E.	323
Andrews, S. R.	306
Andrus, C. F.	266
Angell, H. R.	429, 459, 612, 613
Ankudinov, A. M.	357
Anson, R. R.	184
Anthon, E. W.	22
Aoshima, K.	359
Apenitis, A.	414
Appler, H.	321
Archer, W. A.	619
Ark, P. A.	55, 106, 152, 186, 203, 230
Armstrong, G. M.	19, 362
Armstrong, J. K.	19, 362
Arny, D. C.	601
Arruda, L. F.	382
Arruda, S. C.	375, 400
Arsenjeva, M. V.	158
Arsić, M.	594
Arwidsson, T.	147
Arx, J. A. v.	88, 99, 123, 555
Ashplant, H.	83
Askew, H. O.	70
Asuyama, H.	202
Atkins, I. M.	113
Atkins, J. G.	367
Atkinson, J. D.	336, 612
Ausemus, E. R.	10, 277
Austin, G. D.	211
Baba, I.	399
Babad, J.	621
Baber, E. G.	297
Backus, R. C.	212
Baechler, R. H.	640
Baerecke, M.-L.	138
Bagchee, K. D.	409, 410, 411
Bailey, F. V.	120
Bailey, R. W.	350
Baillie, A. F. H.	240
Bain, D. C.	96
Bakarcic, M.	152
Baker, K. F.	239, 608
Baker, R. E.	23
Bakker, M.	97, 151, 163
Bakshi, B. K.	409
Bald, J. G.	211, 283
Baldacci, E.	31, 102, 140, 246, 358, 379, 398
Balfour-Browne, F. L.	208
Ball, D. V.	14
Ballarin, C.	257
Banasik, C. J.	485
Banfi, A.	182, 382
Banti, G.	464
Barbier, G.	95
Bardin, R.	164
Barker, H. A.	196
Barlow, K. C.	184
Barmack, B. J.	216
Barnes, W. C.	368
Barnett, H. L.	37, 137, 357, 619
Barry, J. P.	146
Bart, G. J.	522
Bartels, R.	453
Bartolomé, R.	424
Baruah, H. K.	554
Baruah, P.	554
Basham, J. T.	413
Basile, R.	530
Basu, S. N.	75
Batista, A. C.	33, 524
Batts, C. C. V.	278
Baumann, G.	221
Baumeister, G.	137
Baumgart, R. W.	579
Bausa Alcalde, M.	577
Bavendamm, W.	263
Bawden, F. C.	169, 201, 469
Baxter, D. V.	215, 637
Baxter, J. W.	142, 351, 578
Bayles, B. B.	482
Bazán de Segura, C.	25, 192, 208, 545, 551
Bazzigher, G.	74
Beach, W. S.	520
Beale, H. P.	319
Beard, J. W.	196
Beaumont, A.	386, 491
Beckenbach, J. R.	213, 542
Becker, G.	525
Becker, Y.	199
Becquerel, P.	28
Beecher, F. S.	272
Beeman, W. W.	218
Beemster, A. B. R.	218
Behr, E. A.	396
Bell, G. H. D.	324, 598
Beloruchev, E. A.	251
Benjamin, R. K.	283
Bennett, C. W.	196
Bennett, M.	69, 188, 190
Benstead, R. J.	426
Beran, F.	276, 387, 419
Bercks, R.	510, 535
Berducou, J.	126
Berk, S.	136, 622
Berkeley, G. H.	363

	PAGES
Bernaux, P.	99, 146, 209
Bernuth, I. v.	319
Berný, M.	40
Bertossi, F.	25
Bever, W. M.	111
Bhargava, K. S.	220
Bhatt, V. V.	479
Bhide, V. P.	545
Biedermann, W.	342
Bieri, F.	67
Bigger, J. H.	61
Bingefors, S.	125
Biraghi, A.	407, 408
Bird, J.	339
Bird, L. S.	282, 432
Bisset, K. A.	196
Bitancourt, A. A.	380, 381, 431
Blair, I. D.	319
Blanchard, F. A.	175
Blank, F.	504
Blank, L. M.	432
Bleasdale, J. K. A.	291
Blencowe, J. W.	217, 467
Blew, J. O.	41, 310, 311, 640
Blodgett, E. C.	243
Blumer, S.	49, 67, 148, 239, 245, 315, 495, 498, 565, 591
Boasso, C. S.	10
Boawn, L. C.	610
Bockmann, H.	533, 548
Bode, O.	397, 533, 571
Böhm, H.	387
Boidin, J.	353
Bolton, A. T.	438
Boncampagni, T.	76
Bongini, V.	23
Boock, O. J.	510, 511
Booer, J. R.	195
Borg, Å.	103
Borget, M.	206
Borlaug, N. E.	482
Bortels, H.	134, 533
Bose, R. G.	569
Bottomley, R. A.	602
Boulton, E. H. R.	41
Bovay, H. E.	311
Bowden, R. A.	24
Bowman, D.	235
Bowman, G. F.	424
Boyce, J. S.	384, 408
Boyce, S. W.	606
Boyce, W. R.	606
Boyd, A. E. W.	31, 625, 626
Boyd, P. F.	345
Bradford, G. R.	114
Braun, A. C.	175, 318, 423
Braun, H.	534
Braun, R.	74
Brauns, F. E.	526
Bredemann, G.	135
Bremer, H.	191
Breton, C.	404
Bretz, T. W.	357
Brian, P. W.	569
Brichet, J.	63, 616
Bridgmon, G. H.	163, 219, 435
Brien, R. M.	346
Brierley, P.	121, 284, 385, 608
Brieskorn, G. H.	501
Briggs, F. N.	546
Brind, J.	255
Brinkerhoff, L. A.	433
Briza, K.	473
Broadbent, L.	5, 200, 313
Broatch, J. D.	426
Brock, R. D.	3
Brockwell, J.	609
Brodie, H. J.	197, 214
Bronner, G.	363
Brooks, R. M.	333
Broughall, F. G.	157
Brown, H. M.	428
Brownlee, G.	196
Brun, J.	443, 616
Bruni, O.	433
Bryden, J. D.	252
Buchholtz, W. F.	27
Buchner, A.	400
Buchwald, N. F.	109
Buckley, T. A.	538
Buddin, W.	313
Bugnicourt, F.	628
Bunting, A. H.	47
Buras, E. M.	506
Burchfield, H. P.	340
Burger, W. C.	404
Burke, D. W.	219, 415
Burkholder, C. L.	389
Burnet, I. M.	611
Burnthall, E. V.	622
Burton, K. A.	460
Buryhina, E. K.	157
Busch, L. V.	268
Busnel, R.-G.	261
Butler, F. C.	447
Butler, M. L.	326
Butterfield, H. M.	23, 331
Butterfield, N. W.	227
Buzacott, J. H.	297
Byrde, R. J. W.	189, 290
Cabral, A.	114
Cabral, R. V. de G.	500, 508
Cadman, C. H.	192, 439, 614, 615
Cafley, J. D.	412
Calavan, E. C.	432
Caldwell, J.	635
Calvert, O. H.	95
Calvo, J. S. S.	82
Camacho, E.	374
Camfferman, J.	579
Campacci, C. A.	83, 339, 530
Campbell, J. A.	218
Campbell, J. C.	30
Campbell, W. A.	41
Campos, T. A.	371, 482
Cañamas, R.	276
Cannon, O. S.	259
Capetta, G. B.	6
Capoor, S. P.	6
Capris, N.	505
Cardelle, G.	344
Cárdenas, M.	182
Cardeñosa Barriga, R.	562
Cardona, C.	130, 560
Carlson, C. W.	281
Carpenter, C. P.	392
Carpenter, J. B.	294
Carpentier, S.	532
Carr, D. R.	1
Carrera, C. J. M.	411
Carsner, E.	447
Carson, R. B.	433
Carter, E. P.	112
Carter, J. F.	65, 556
Cartwright, K. St. G.	305

PAGES

Carvalho, R. de S. 207
Casas-Campillo, C. 375
Cassin, J. 603
Cass Smith, W. P. 467
Castellani, E. . . . 246, 273, 431
Castori, M. 450
Castronovo, A. 395
Catcheside, D. C. 197
Cation, D. 129, 336
Ceccarelli, V. 419
Celino, M. S. 356
Cenóz, H. P. 277
Cercós, A. P. 395
Cervantes, J. 370
Chabannes, J. 95
Chamberlain, D. W. 267
Chamberlain, E. E. . . . 336, 606
Chamberlain, G. C. 67, 69
Chandraratna, M. F. 131
Chapman, G. 107
Chapman, R. A. 468
Chapot, H. 432
Chattopadhyay, S. B. . . 294, 526, 572
Chaudhuri, R. P. 469
Cheema, G. S. 71
Cheo, P. C. 95
Cheremisinov, N. A. . . . 31, 83, 84
Cherewick, W. J. 427
Chester, K. S. 73
Chesters, C. G. C. 400
Chevaugeon, J. 255
Chian, L. T. 300
Childers, N. F. 362
Childs, L. 497
Chilton, J. E. 332
Chilton, S. J. P. 298
Chittenden, E. T. 70
Chona, B. L. 87, 400
Chorin, M. 361
Chowdhury, S. 182, 183
Christensen, C. M. . 112, 345, 393, 602
Christensen, J. J. 179, 196
Christiansen, D. W. 631
Cialzeta, C. 277
Ciccarone, A. 32, 33, 514, 521
Ciferri, R. 14, 16, 20, 25, 31, 90, 91, 186, 463, 566
Clark, F. S. 600
Clayton, E. E. 212
Clifton, C. E. 196
Cochran, G. W. 21
Cochran, L. C. 129
Cockerill, J. 412
Coe, D. M. 228, 436
Coffman, F. A. 113, 180
Cohen, G. N. 196
Cohen, M. 345
Colasito, J. 276
Coleman, R. G. 601
Colhoun, J. 216
Collingwood, C. A. 437
Coltrin, L. 313
Condado, C. 181
Conover, R. A. . . . 542, 543, 636
Cook, A. 374
Cook, A. A. 585
Cooke, W. B. 401
Cookson, E. D. 507
Cooley, J. S. 101
Coolhaas, C. 579
Coombe, B. G. 532
Coony, J. J. 62
Cooper, A. S. 506

PAGES

Cooper, D. C. 396
Coppock, J. B. M. 507
Cormack, M. W. 332, 493
Cornuet, P. 121, 211
Costa, A. S. . 46, 62, 88, 114, 382, 405, 418, 459, 568
Cox, C. E. 193
Cox, H. A. 414
Cox, R. S. 4, 44
Craig, F. W. 37
Crandall, B. S. 302
Crawford, K. 345
Creuzburg, U. 190
Croissant, O. 121
Cronshey, J. F. H. . . . 290, 447
Crosse, J. E. 190
Crowdy, S. H. 249, 445
Crownover, R. 423
Croxall, H. E. 437
Cruickshank, I. A. M. . . . 328, 528
Culbertson, J. O. 552
Cumber, R. A. 606
Cummins, G. B. . . . 402, 464, 578
Cunningham, G. H. . . . 33, 247, 319
Cunningham, J. C. 180
Curtis, P. J. 198, 569
Cury, R. 488
Cutler, G. H. 386
Cutter, V. M. 196, 305, 508
Cuzin, J. 404
Czech, M. 564, 570

Da Camâra, E. de S. 146, 301
Daly, J. M. 196
Dame, F. 524
Damle, V. P. 623
Darby, J. F. 293
D'Armini, M. 443
Darpoux, H. 29, 39, 234, 244, 252, 261, 438
Darrow, G. M. 440
Das, S. C. 541
Davidson, A. G. 413
Davies, M. E. 445
Davis, D. 128, 392
Davis, G. N. 273, 628
Davis, L. H. 122, 239
Davis, S. H. 284
Davuidov, P. N. 129
Day, L. H. 68
De Andrade, A. C. 580
De Baun, R. M. 409, 413
De Capite, L. 596
De Carvalho, T. 77, 183, 511
Decker, P. 541
De Fluiter, H. J. 288
Deighton, F. C. 258, 325, 476
De Jong, P. 461, 578
De Jonge, C. 286
Delević, B. 349
Delitala, A. 21, 494
Delp, C. J. 167
Delvi, M. H. 493
Delwiche, C. C. 90
Demaree, J. B. . . . 275, 288, 423
Démétriadès, S. D. . 6, 30, 172, 186, 224, 235, 250, 256
Dennis, R. W. G. 300, 393
De Rojas Peña, E. 254
De Ropp, R. S. 105
Desai, M. V. 557
De Stevens, G. 413, 526
De Tar, J. E. 242
De Urries, M. J. . . . 276, 377, 577

	PAGES
De Zeeuw, D. J.	365, 428
Dhande, G. W.	86, 107, 544
Dias, H. F.	367
Dicker, G. H. L.	440
Dickson, J. G.	386, 556
Diehl, W. W.	244, 310, 384, 402
Dietz, S. M.	142
Dijkman, M. J.	399
Dimock, A. W.	65
Dimond, A. E.	106, 133, 149, 196, 468, 581
Doidge, E. M.	515
D'Oliveira, B.	376
Donald, C. M.	436
Doolittle, S. P.	34, 272
Doran, W. L.	226
Dorn, M.	585
Downing, M. H.	296
Dowson, W. J.	8, 253
Drayton, F. L.	607
Drechsler, C.	366
Drees	533
Dreyer, A. F.	303
Drouillon, R.	274
Ducharme, E. P.	114, 182, 282, 382
Ducker, H. C.	184
Duddington, C. L.	15, 64, 283
Dullum, N.	66
Dunbabin, T.	59
Dungan, G. H.	61
Dunn, E. E.	340
Dupias, G.	146
Du Plessis, S. J.	473, 548
Dutt, N. L.	298
Dwyer, R. E. P.	9
Dye, D. W.	322, 480, 595
Dyer, R. A.	536
Džodić, M.	594
Eads, C. O.	491
Earhart, R. W.	601
Ebben, M.	222
Eddins, A. H.	541
Edgerton, C. W.	197, 300
Egle, K.	552
Eisenstark, A.	423
Ekstrand, H.	285, 550
Elliott, C.	105
Elliott, E. S.	18, 286
Ellis, D. E.	4, 365
Ellis, E. A.	588
Ellis, N. K.	43
Elting, J. P.	605
Emge, R. G.	462
Engel, R. E.	284
English, M. P.	23, 70
Epps, W. M.	368
Erdtman, H.	414
Ernould, L.	159, 415
Erwin, D. C.	351
Esfandiari, E.	354
Evans, A. C.	315
Evelyn, S. H.	184
Faan, H. C.	273
Fabricatore, J. A.	492
Fabris, A.	31
Faivre-Amiot, A.	234, 244, 252
Fall, J.	442
Favret, E.	277
Feder, W. A.	55, 447
Fellows, H.	12, 177
Fenart, J.	39
Fenne, S. B.	302, 549
Ferguson, J.	434
Ferguson, W.	636
Fernandes Valiela, M. V.	181, 343
Fernando, M.	320
Fernando Mujica, R.	242
Fiedler, O. G. H.	488
Fielding, A. H.	32
Findlay, G. M.	103
Findlay, W. P. K.	154, 465
Findlen, H.	513
Findley, W. R.	325
Finholt, R. W.	215
Fink, G.	433
Finley, A. M.	35
Fischer, C. W.	446
Fischer, G. W.	27, 60, 100, 378, 401
Fischer, H.	49
Fischer, R.	624
Fisher, F. E.	116
Fisher, H. H.	467
Fitzpatrick, H. M.	148
Fitzpatrick, R. E.	499
Flensberg, R.	483
Flentje, N. T.	344, 497
Flor, H. H.	489
Flores Cáceres, S.	375
Fogliani, G.	246
Foister, C. E.	625
Folsom, D.	130, 560
Ford, H. W.	542
Forlani, R.	379
Forster, R.	403
Foster, A. T.	215
Foster, H. H.	497
Foster, J. W.	103, 196
Foster, R. E.	215
Foster, W. R.	103
Fowler, M. E.	306, 522
Fowler, R. L.	56
Fraga, C. G.	405
Franco, C. M.	114
François, T.	43
Fraselle, J. V.	282
Fraser, R. D. B.	634
Fraymouth, J.	36
Frazier, N. W.	131, 614
Frecha, J. H.	277
Freire, J. R. J.	589
Freitag, J. H.	168, 368
Friedman, B. A.	4, 164, 530
Frimmel, F.	134
Fritz, C. W.	308
Froede, O.	263
Fry, P. R.	606
Fulton, R. H.	287, 288, 337
Fulton, R. W.	355, 518
Fults, J. L.	203
Fusey, P.	375
Gadd, G. O.	155
Gagnotto, A. V.	127, 167
Gale, G.	255
Gallay, R.	532
Gallegly, M. E.	374, 398, 417
Galleymore, H. B.	177
Gallie, R. J. L.	626
Gangstad, E. O.	489
Gante, T.	158
Garber, R. H.	203
Garino-Canina, E.	505
Garrett, S. D.	429, 514
Gasc Daireaux, A.	436

	PAGES
Gasiorkewicz, E. C.	396
Gassner, G.	428, 511, 527, 565
Gattani, M. L.	87, 446, 505
Gaudineau, M.	612
Gäumann, E.	74, 76, 93, 124
Gautheret, R.	323
Gayed, S. K.	238
Geddes, W. F.	602
Geering, J.	498
Geeseman, G. E.	45
Gentile, A. C.	252
Gentilucci, T.	495
Genung, W. G.	489
Gertler, S. I.	72
Gessel, S. P.	307
Ghillini, C. A.	184
Ghosh, J. J.	505
Gibberd, A. V.	426
Gibler, J. W.	268
Gibson, K. E.	201
Gigante, R.	90
Gill, J. B.	235
Gill, L. S.	306
Gilpatrick, J. D.	268, 491
Ginet, J.	39
Girginkoç, H. R.	161
Gjaerum, H. B.	559
Glynne, M. D.	279
Glynne Jones, G. D.	2
Goddard, D. R.	276
Godfrey, G. H.	417
Godoy, E. F.	433
Goehde, H. L. v.	570
Goldin, M. I.	274
Goldsworthy, M. C.	72
Goldthwait, C. P.	506
Good, H. M.	524
Goodey, J. B.	64
Goodey, T.	285
Goodwin, T. W.	394
Goossens, J.	164
Gopalkrishnan, K. S.	285
Gordon, W. L.	597
Gorlenko, M. V.	213
Görnitz, K.	564
Gorter, G. J. M. A.	486
Gorton, G. R.	329
Goss, O. M.	467
Goswami, T. K.	387
Goto, K.	180
Goto, S.	379
Gottlieb, D.	344, 356, 448
Gould, C. J.	119
Gouny, P.	558
Govi, G.	500
Govindan, P. R.	522
Grace, J.	497
Graf, L. H.	90
Graham, F.	255
Graham, J. H.	313, 367
Graham, R. W.	43, 219
Graham, T. W.	356
Gram, E.	393
Grancini, P.	398
Grant, T. J.	62, 262
Grau, F. V.	285
Gravatt, G. F.	463, 582, 639
Greathouse, G. A.	196
Greaves, C.	309
Greeg, M.	321
Green, G. J.	486
Green, J. M.	433
Green, R. J.	351
Greenspan, F. P.	637
Gregor, J. W.	626
Gregory, K. F.	449
Gregory, M. E.	252
Gregory, P. H.	251, 256, 304, 582, 618, 619
Gremmen, J.	516
Griebel, C.	114
Grimm, H.	511
Grisvard, P.	638
Grogan, R. G.	164
Grosjean, J.	287, 390
Grossbard, E.	74
Groves, J. W.	607
Gruenhagen, R. H.	340
Grushevoi, S. E.	187
Guba, E. F.	227, 533
Guha, M. P.	512
Guillemat, J.	199
Gunkel, W. W.	99
Guntz, M.	484
Gupta, R. M.	369
Gupta, V. C.	416
Guthrie, L. R.	326
Guyot, A. L.	146, 147
Guyot, L.	199
Guzmán, V. L.	616
Hacker, W.	286
Haddock, P. G.	307
Hadiwidjaja, T.	165, 557
Hafiz, A.	59
Hagedorn, D. J.	98
Hägglund, E.	94
Hale, C. W.	345
Hall, L. A.	504
Hall, L. T.	605
Halpin, J. E.	386
Hamilton, J. M.	436
Hamlyn, B. M. G.	467
Hanna, A. D.	233
Hanna, W. F.	279
Hansen, C. J.	336
Hansen, H. P.	383
Hansen, H. R.	171
Hansen, K.	502
Hanson, E. W.	98, 386
Hanspeter, A.	190
Harkom, J. F.	309
Härle, A.	171, 535
Harley, J. L.	396
Harmsen, L.	525
Harnack, W.	564
Harris, R. H.	485
Harris, R. V.	171, 192, 208, 350, 558
Harris, W. B.	20
Harriss, R. W.	334
Harry, J. B.	341
Hartmann, H. T.	25
Hartmann, U.	523
Hartsuijker, K.	25, 26, 132
Hartwig, E. E.	163
H[arvey], C.	551
Harvey, H. L.	467
Harvey, J. M.	38, 261
Hashioka, Y.	205, 455, 575
Haskins, R. H.	448
Hasler, A.	387
Hassebrauk, K.	176, 482
Hastings, A.	322
Hastings, L.	372
Hauschild, I.	533, 571
Havas, L.-J.	175
Hawker, L. E.	36

	PAGES
Haworth, F.	516
Hay, W. D.	632
Hayakawa, Y.	140
Heatherington, W.	233
Heatley, N. G.	345
Heiberg, S. O.	307
Heiling, A.	586
Heim, R.	146, 375, 433
Heinisch, O.	365
Heinze, K.	168, 369
Helson, G. A. H.	125
Hemming, H. G.	198
Henderson, F. Y.	262
Henderson, L. M.	128
Henkens, H.	312
Henner, J.	406, 419, 624
Henry, A. W.	428
Henry, B. W.	37, 307
Hensel, R. L.	284
Hepting, G. H.	408, 464
Hervey, A.	8, 622
Hes, J. W.	207
Hessayon, D. G.	130, 396
Hesseltine, C. W.	578
Heuberger, J. W.	391, 612
Hewitt, W. B.	167, 590
Hey, A.	573
Hey, G. L.	589
Heymann-Herschberg, L.	383
Hickman, C. J.	23, 70
Hickson, H. E.	414
Hildebrand, A. A.	470, 529
Hildebrandt, A. C.	196
Hildreth, R.	415
Hillenbrand, E. F.	133
Hillier, J.	107
Hills, W. A.	543
Hingorani, G. M.	390
Hingorani, M. K.	218, 400
Hirai, T.	57
Hiratsuka, N.	402
Hirschhorn, E.	13
Hirst, J. M.	618, 619
Hitchins, P. E. N.	463
Hiura, U.	102
Hoadley, A. D.	581
Hodgson, H. J.	436
Hodgson, R.	230
Hodgson, W. A.	77
Hofferbert, W.	454
Hoffman, J. C.	218, 266, 366
Hoffmann, E.	613
Hogan, W. D.	259, 543
Hogsett, J. N.	133
Holdeman, Q. L.	356
Holloman, A.	186
Hollowell, E. A.	125
Holm, L.	402
Holmes, E.	447
Holmes, F. O.	634
Holton, C. S.	178, 180
Honkavaara, T.	546
Hooker, W. J.	139
Hopf, M.	204
Hopkins, E. F.	543
Hopkins, J. C. F.	475
Hoppe, P. E.	14, 61
Horber, E.	533
Hord, H. H. V.	244, 287
Horgan, E. D.	361
Horner, C. E.	142
Horovitz, N.	277
Horsfall, J. G.	133, 196, 204, 339, 563
Hosaka, Y.	582
Hougas, R. W.	396, 466
Hough, L. F.	387
Houston, B. R.	113, 233, 597
Houtzagers	261
Howard, F. L.	330
Howatt, J. L.	77
Howland, S. R.	569
Howles, R.	222, 223
Hsia, Y. J.	300
Hsia, Y.-T.	179
Huber, G. A.	615
Hubert, A. J.	396
Hubert, F. P.	73
Hughes, C. G.	299
Hughes, S. J.	147, 301
Hull, R.	159, 415, 467
Hunter, J. A.	336
Hunter, J. G.	631
Hunter, R.	433
Huntley, G.	630
Hurt, B. C.	235
Hurtig, I.	527
Hussain, S. M.	311, 361
Hutchinson, J. B.	64, 184
Hutchinson, M. T.	131
Hutchinson, P. B.	322
Hüttenbach, H.	139
Hutton, E. M.	452, 518
Hyde, M. B.	177
Hyre, R. A.	44, 204
Ibragimov, G. R.	165
Ibrahim, I. A.	179
Ikata, S.	458
Imle, E. P.	374
Ink, D. P.	440
Inoue, Y.	156
Ishii, H.	548
Ishii, M.	302
Ishizuka, Y.	140
Itô, K.	153, 546, 582
Ivanoff, S. S.	235
Ivimey-Cook, W. R.	196
Iwata, Y.	102
Jacks, H.	264, 324, 521, 522
Jackson, L. W. R.	360
Jackson, T. L.	178
Jacob, A.	459
Jacobs, S. E.	229
Jain, A. C.	36, 492, 554, 588, 589, 609
Jaivenois, A.	126
Jamalainen, E. A.	556
James, M. O.	434
James, N.	599
Jameson, J. D.	173
Janson, B. F.	576
Jauch, C.	334
Jeffers, R. L.	557
Jeffers, W. F.	306, 553
Jefferson, R. N.	491
Jeffery, M. W.	344
Jefferys, E. G.	569
Jehle, R. A.	470
Jenkins, A. E.	131, 132, 182, 470
Jenkins, J. E. E.	437
Jenkins, M. T.	550
Jenkinson, J. G.	2
Jensen, D. D.	490, 614
Jensen, N. F.	279
Jepson, W. F.	240

	PAGES
Johannes, H.	534
Johns, R.	426
Johnson, F.	554, 615
Johnson, F. H.	107
Johnson, G.	454
Johnson, H. A.	235
Johnson, H. W.	220
Johnson, J.	273, 355
Johnson, J. C.	259
Johnson, R. L.	347
Johnson, T.	486
Johnston, A.	517
Johnston, C. O.	10, 58
Jones, C. R.	319
Jones, H. T.	514
Jones, L. H.	226
Jones, L. S.	22
Jones, W.	633
Jordović, M.	474
Jørgensen, E.	412
Jorgensen, H.	366
Jorritsma, J.	266
Joshi, B. M.	71
Judenko, E.	223
Juganova, O. N.	166
Jugenheimer, R. W.	61
Juliano, J. P.	118
Kaloostian, G. H.	21, 22
Kamal, M.	132
Kamat, M. N.	390
Kammermann, N.	78
Kanapaux, M. S.	366
Kaplan, R. W.	319
Karakulin, B. P.	515
Karata, S.	291
Karel, G.	588
Karmakar, D. V.	71
Karper, R. E.	114
Karsberg, P.	218
Kasai, T.	97
Kassanis, B.	201, 469, 624
Kastendieck, M.	494
Katajima, H.	128
Katznelson, H.	480
Kaufman, J.	513
Kausche, G.-A.	89
Kavanagh, F.	622
Kearns, H. G. H.	194, 286
Keener, P. D.	472
Keil, H. L.	330, 563
Keitt, G. W.	620
Kelbert, D. G. A.	542
Keleny, G. P.	624
Keller, H. G.	292
Keller, J. R.	120, 446
Kelly, B. K.	345
Kelly, C. D.	504, 566
KenKnight, G.	68
Kennedy, J. S.	98, 168
Kernkamp, M. F.	268
Kerr, H. B.	185
Keyworth, W. G.	69, 73, 84, 208, 350, 581
Khan, A. H.	214
Kienholz, J. R.	242, 497
Kincaid, R. R.	543
King, N. C.	143
King, N. J.	297
Kinman, C. F.	243
Kirby, A. H. M.	341
Kirby, R. S.	389
Kirkpatrick, H. C.	127, 420
Kišpatić, J.	605
Kistner, A.	73
Kitajima, H.	128
Kittleson, A. R.	443
Klaptsova, N. K.	11
Klášterský, I.	38
Klein, B. I.	55
Kleis, R. W.	428
Klemm, M.	148, 536
Klesser, P. J.	245
Klindić, O.	335, 605
Klinkowski, M.	97, 221, 453, 535
Klomparens, W.	323, 331
Klöpping, H. L.	193
Klostermeyer, E. C.	201
Klotz, L. J.	132
Knight, C. A.	355, 518
Knight, R. L.	184
Knorr, L. C.	114, 182, 382, 542
Kobayashi, K.	153
Kobel, F.	49
Koch, J. E.	157
Kochi, M.	395
Kock, L. W.	150, 248, 529
Kockin, S. A.	111
Koehler, B.	61
Koellreuter, J.	561
Koenig, H. J.	302
Koffler, H.	276
Köhler, E.	138, 202, 397, 519
Köhler, H.	444
Kole, A. P.	59
Komuro, Y.	202
Konev, G. I.	40
Kontani, S.	153
Koo, K. S.	277
Korf, R. P.	617
Koshimizu, Y.	57
Kotte, W.	91, 128
Koyama, H.	548
Kozlova, N. I.	14
Kozłowska, A.	75
Kramer, O.	275
Krause, R. L.	154
Kreger-Van Rij, N. J. W.	567
Krehl, W. A.	196
Kreitlow, K. W.	18, 470
Kristensen, H. R.	171
Krstev, K.	453
Krstić, M.	41, 347, 358, 638
Krug, C.	551
Krüger, F. H.	201
Kuang, H. H.	398
Kuhnholtz-Lordat, G.	146
Kulik, A. A.	130
Kulkarni, N. B.	574
Kulkarni, Y. S.	5, 86, 107, 479, 544, 574
Kundert, J.	67, 565, 591
Kunkel, L. O.	332
Kuntz, J. E.	522
Kushman, L. J.	101
Kutsky, R.	221
Lachance, R.-O.	238
Lacy, R. C.	402
Lagerquist, R.	285
Lal, A.	410
Lal, K. N.	514
Lal, S. B.	390, 420
Lamb, J.	403
Lamb, J. G. D.	243
Lamour, R.	63
Lancaster, F. R.	37
Landis, B. J.	201

	PAGES
Landrum, R.	235
Lang, A. L.	61
Lange, P. W.	94
Langeron, M.	503
Lansade, M.	484
Large, J. R.	541
Larson, R. H.	199, 293, 585
Laurie, A.	328
Lauriol, F.	431
Lawson, F. R.	447
Leach, J. G.	18, 286
Leaphart, C. D.	306
Leben, C.	620
Leblanc, R.	234
Lechevalier, H. A.	395
Lee, A. E.	543
Lefebvre, C. L.	45
Legge, B. J.	65, 394
Lehman, S. G.	163
Leifson, E.	229
Lejeune, A. J.	485
Lejeune, A. R.	599
Lekander, B.	408
Lelièvre, D.	199
Le May, D. G.	142
Lentz, P. L.	214
Leonard, B. R.	218
Leonard, J. M.	346
Leonard, W. H.	258
Leopold, B.	414, 526
Lepine, P.	121
Lepori, L.	456
Lespes, L.	430
Leukel, R.	177, 178, 181
Leutritz, J.	156
Levin, G. G.	252
Levine, M. N.	10
Levisohn, I.	347
Lewis, W. D.	367
Leyendecker, P. J.	383
Lhoste, J.	110
Li, F.	134
Liao, S. J.	196
Liese, J.	309
Lihnell, D.	80, 417
Lilly, V. G.	137, 619
Lima, A. R.	459
Limasset, P.	211
Lindberg, N. J.	74
Lindeberg, G.	107
Lindner, R. C.	127, 420
Ling, K. C.	299
Ling, L.	4, 147, 209
Link, G. K. K.	276
Linn, M. B.	35, 406, 462
Lioret, C.	544
Lipeckaja, A. D.	157
Litzenberger, S. C.	233
Livermore, J. R.	201
Livingston, J. E.	602
Lo, T. T.	300
Lobanov, N. V.	622
Lobb, W. R.	19
Locquin, M.	375
Lodder, J.	567
Loewel, E. L.	534
Loh, C. S.	143
Loneragan, J. F.	185
Longchamp, R.	323
Loos, C. A.	210, 403, 517
López R., G. H.	56
Lorenz, R. C.	458
Lorenzini, T.	76
Loucks, K. W.	543
Louw, A. J.	334
Loveless, A. R.	187, 241
Lovisolo, O.	438
Lowther, C. V.	234
Lucardie, M.	150
Lucas, E. H.	428
Luce, W. A.	242
Luck, J. V.	351
Ludbrook, W. V.	609
Lundblad, K.	285
Lupton, F. G. H.	598
Lušin, V.	605, 626
Luttrell, E. S.	589
Lwowski, W.	89
Lyall, L. H.	636
Ma, P. T.	299
Maan, W. J.	133, 393
MacDonald, J. A.	27
Machacek, J. E.	545, 596
Mackay, J. H. E.	614, 636
Mackellar, D. G.	637
MacLachlan, D. S.	206, 512
MacLean, N. A.	119, 608
Macrae, R.	91
MacSwan, I. C.	103
Magie, R. O.	435, 490, 542
Mahmud, K. A.	488, 492, 551, 584, 588
Mains, E. B.	283
Majid, S.	370
Maki, T. E.	307
Malaguti, G.	82, 83, 380, 399
Malençon, G.	409
Maltschewsky, N.	127
Mandel, J. D.	423
Mandel, M.	174
Mandelson, L. F.	252
Manganaro, S. G.	582
Manil, P.	595
Manis, W. E.	374
Manning, H. L.	64
Manowitz, M.	136
Manten, A.	193
Maramorosch, K.	48, 61, 221, 318, 475
Maravalhas, N.	198
Marc, B.	243
Marcelin, P.	406
Marchionatto, J. B.	343, 418, 566
Marcus, C. P.	288, 440
Mariani, C.	456
Marion, J.	409
Markwalder	123
Marquardt, H.	319
Marsden, D. H.	581
Marsh, P. B.	326
Marsh, R. W.	189, 290
Marshall, C. R.	570
Marston, H. R.	576
Martin, C.	121
Martin, J. P.	298
Martin, J. T.	562
Martínez, J.	373
M[artin]-L[eake], H.	145
Martinović, M.	336
Martins, H. O.	350
Massenot, M.	146, 606
Massey, D. M.	222, 223
Mathiesen, A.	42, 408
Mathur, R. L.	568
Matsumiya, H.	76, 203
Matthews, R. E. F.	318, 606
Mazoyer, R.	558

	PAGES
Mazzei, I.	591
McCallum, A. W.	523
McClain, R. L.	228
McClean, R. C.	196
McClure, T. T.	129
McCready, C. C.	396
McCrory, S. A.	189
McEwen, D. M.	376
McGeorge, W. J.	141
McGregor, W. G.	632
McKee, R. K.	625, 626
McKeen, C. D.	473, 529
McKeen, W. E.	60, 430, 486
McKibben, G. E.	61
McKinney, H. H.	12, 177, 235
McLarty, H. R.	438
McLaughlin, J. H.	374
McMurtrey, J. E.	212
McNew, G. L.	340
Meffert, M. E.	85
Mehrotra, B. S.	199
Mehta, P. R.	55, 390
Meierhans, J.	360
Meiners, J. P.	493
Melchers, G.	319
Meléndez, M. de los A.	372
Mellor, F. C.	499
Meneghini, M.	90
Menzies, J. D.	415
Messenger, A. P.	228
Messing, J. H. L.	222, 223
Metcalf, H. N.	467
Meyer, H.	484
Mezzetti, A.	17, 36
Michener, H. D.	29
Middleton, J. T.	33
Mikola, P.	639
Milatović, I.	335
Milbrath, J. A.	497
Millar, R. L.	428
Miller, G. A.	345
Miller, H. J.	529
Miller, J. J.	514
Miller, P. R.	226, 639
Miller, P. W.	440, 441, 463
Miller, V. L.	554
Miller, W. L.	184
Millikan, C. R.	117
Mills, M.	429
Mills, P. J.	298
Mills, W. R.	349
Minev, K.	323
Minges, P. A.	274
Minz, G.	446
Mirić, M.	334
Mirzabekyan, R. O.	621
Mitchell, J. W.	468
Mitton, R. G.	74
Miyakawa, T.	403
Mizukami, T.	294
Moberg, H. A.	617
Mohanty, U.	56, 229
Molin, K.	107
Monk, R. J.	69
Monin, A.	614
Moniz, L.	545
Monroe, C. M.	443
Montaldo, A.	254
Montant, C.	571
Montégut, J.	146
Montgomery, H. B. S.	286
Moore, M. B.	379
Moore, M. H.	188, 191, 617
Moore, W. C.	208
Moreau, C.	152, 250, 282, 604, 617, 633
Moreau, F.	621
Moreau, M.	152, 282, 604, 633
Moreira, S.	62
Morgan, N. G.	194, 286
Morquer, R.	571
Morris, H. E.	467, 469
Mostafa, M. A.	238
Mujica, F.	372
Mulder, D.	128, 287, 494, 560
Mülder, D.	306
Muller, A. S.	375
Müller, E.	342, 354
Müller, K. O.	454, 572
Müller-Stoll, W. R.	523, 591
Mundkur, B. B.	402
Mungomery, R. W.	352
Munjal, R. L.	400
Munnecke, D. E.	553
Munro, J.	454
Muntañola, M.	487, 515
Murakishi, H. H.	17, 329, 607
Murayama, D.	76, 203
Murillo Peralta, G.	370
Murneek, E. A.	335
Murphy, H. C.	12, 379
Musgrave, A. J.	74
Myers, W. M.	124, 557
Myhre, A. S.	337
Nadel-Schiffmann, M.	603, 604
Naito, T.	72
Najjar, H.	126
Nakamura, T.	156
Nakanishi, I.	180
Nanayakkara, K. D. S. S.	131
Narasimhan, M. J.	401
Narayanamurti, D.	94
Nariani, T. K.	531
Nattrass, R. M.	16, 414
Naumova, N. A.	11
Naundorf, G.	113
Nazarovna, M. Z.	274
Neal, D. C.	64
Neal, R. W.	514
Neergaard, P.	71, 224, 269
Nel, R. I.	537
Nelson, C. D.	524
Nelson, K. E.	167
Nelson, K. S.	328
Nelson, R.	4, 576
Nema, K. G.	492, 554, 589, 609
Neto, J. E. P.	510
Neto, J. P. da C.	532
Newhall, A. G.	4, 99, 269
Newhook, F. J.	269, 606
Newsom, L. D.	64
Newton, N.	434
Newton, W.	502
Nicholas, D. J. D.	32
Nicholls, V. O.	17
Nichols, R. F. W.	7
Nickl-Navrdtil, H.	384
Nicolas, G.	325
Nicolini, J. C.	338
Nicot, J.	198
Nielsen, E. L.	124
Nielsen, L. W.	455
Nielson, M. W.	22
Niethammer, A.	450
Nigam, S. S.	567
Nikolić, V.	328, 335, 363, 367, 609

PAGES

Nishikado, Y. 102
Nishimoto, K. 156
Nitsch, J. P. 481
Noll, A. 110, 483
Noll, L. 584
Nonveiller, G. 444
Noordam, D. 122, 123
Nord, F. F. 409, 413, 526
Normanha, E. S. 419
Noronha, E. de A. 301
Norris, D. O. 451
Nortjé, J. H. 548
Nothdurft, W. 570
Novák, J. B. 40
Nusbaum, C. J. 33
Nutman, F. J. 8
Nylinder, P. 582

Obermayer, G. 501
O'Brien, M. 226
Oertli, H. 275
Ogihara, T. 141
Ohlander, M. C. 329
Olivas, J. 373
Olive, L. S. 73
Olmo, H. P. 333
Olson, E. O. 236, 237
Olson, R. V. 281
Olson, W. Z. 41
Oostenbrink, M. 98
Oppermann, A. 583
Orian, G. 537
Orjuela Navarrete, J. 371, 428
Orsenigo, M. 358, 406, 407
Orshanskaya, V. N. 604
Ortega Cantero, B. 371
Orth, H. 454
Osaki, I. 291
Oster, G. 150
Oswald, J. W. 113, 203, 233, 597
Otoya, F. J. 108
Owen, O. 222, 223
Owen, R. D. 211

Paclt, J. 153
Padhye, Y. A. 390
Pady, S. M. 504
Paharia, K. D. 501
Pal, B. P. 428
Palmiter, D. H. 190, 436
Palti, J. 361, 446, 562
Panfilova, T. S. 316
Panjan, M. 333, 349
Pant, D. N. 391
Papaioannou, P. 25
Parker, K. G. 129
Parker-Rhodes, A. F. 578
Parmentier, G. 101
Parris, G. K. 47, 165, 542
Pascoe, T. A. 155
Pasqui, G. 496
Passera, U. 505
Pate, J. B. 489
Patel, I. M. 579
Patel, M. K. 5, 86, 107, 390, 479, 544, 574
Patil, R. B. 545
Patiño, B. 302
Patterson, E. L. 90
Paulus, A. 415, 485
Pavari, A. 358
Pavgi, M. S. 147

PAGES

Pavlík, M. 508
Payak, M. M. 99
Peak, J. W. 452
Peers, D. J. 514
Pehrson, S. O. 156, 345
Pendleton, J. W. 61
Penteado, M. P. 88, 459
Pepper, B. B. 30
Pereira, A. S. 419
Perišić, M. M. 187, 337, 353, 594, 616
Perlman, D. 395
Perret, J.-E. 430
Pesante, A. 28
Pesola, V. A. 546
Petersen, B. B. 412
Petersen, D. H. 497
Peterson, E. A. 428
Peterson, L. C. 349
Peterson, R. F. 279
Peterson, W. H. 230, 449
Petit, A. 108
Petrak, F. 353
Pettinari, C. 125, 164, 501, 530
Peturson, B. 179
Peyer, E. 274, 419
Pfaeltzer, J. W. 355
Pichler, F. 279, 378, 549, 550
Piemeisel, R. L. 447
Pijper, A. 73
Pilát, A. 257
Pinsky, A. 621
Pinto-Lopes, J. 92, 503
Pitman, A. L. 346
Plakidas, A. G. 337, 434, 589
Plank, H. K. 362
Plant, W. 2, 417
Plotho, O. v. 364
Pohjakallio, O. 481, 511
Politis, J. 146
Pollard, E. 149
Polunin, N. 28, 504, 566
Ponchet, J. 484
Pontecorvo, G. 567
Poole, D. D. 379
Popp, W. 427, 485
Porte, W. S. 260
Porter, R. D. 418
Portsmouth, G. B. 403
Posnette, A. F. 390, 427, 440, 558
Potter, C. 617
Potter, J. M. S. 66
Poulos, P. L. 612
Pound, G. S. 95, 305, 312, 466
Powell, D. 128, 441
Powers, H. R. 461
Prasad, N. 390, 555, 557, 579
Prasada, R. 387
Prentice, I. W. 246
Preston, A. P. 188
Price, W. C. 302, 318, 369
Prier, J. E. 568
Příhoda, A. 38, 40
Pristou, R. 398
Pugsley, A. T. 109
Pullen, A. R. 184
Pupillo, M. 487
Py, C. 616

Quantz, L. 312, 313, 535, 587
Quesada, T. R. 374
Questel, R. 506
Quintanilha, A. 503
Quirós Calvos, M. 47

	PAGES
Quisenberry, K. S.	58
Raabe, R. D.	95
Racicot, H. N.	438, 509, 512, 636
Rademacher, B.	278, 364
Rader, W. E.	443
Raffel, S.	196
Rahman, S. M. A.	86
Raillo, A. I.	148
Rajan, B. S. V.	567
Ramakrishnan, T. S.	88, 634
Ramanathan, V.	14
Ramsbottom, J.	208
Ramsey, G. B.	247
Ramsfjell, T.	244, 559
Raper, K. B.	620
Rasmussen, P. M.	66
Raudnitz, H.	569
Ravanello, G.	82, 399
Ravault, L.	110
Raychaudhuri, S. P.	420, 520
Rayss, T.	146
Read, W. H.	222, 223
Reckendorfer, P.	74
Redmond, D. R.	305
Reeves, E. L.	243
Reichert, I.	562
Reid, W. D.	21, 346
Reinboldt, B.	142
Reitsma, J.	210
Reitz, H. C.	276
Reitz, H. J.	542
Reitz, L. P.	58
Rennerfelt, E.	42, 408
Repert, A.-F.	175
Reuther, W.	237
Rey Siller, L.	374
Rhind, D.	325
Ribaldi, M.	437, 448, 464, 492
Ricci, P.	496
Rich, A. E.	450
Rich, S.	106, 339, 563
Richards, B. L.	21
Richards, C. A.	640
Richards, F. J.	601
Richards, S. J.	338
Richardson, J. K.	544
Richardson, L. T.	206, 509
Richter	499
Ridé, M.	261
Rieman, G. H.	396, 466
Rieuf, P.	616
Riker, A. J.	196, 230, 449, 552
Riley, E. A.	486
Ríos, M.	372
Rippel-Baldes, A.	251
Rishbeth, J.	262, 640
Ritchie, W. H.	396
Roane, C. W.	549
Robak, H.	92
Robbins, R. E.	612
Robbins, W. J.	8, 622
Robert, A. L.	325, 550
Roberts, E. T.	313
Roberts, R.	258
Robertson, R. B.	311
Robinson, P. E.	297
Robinson, R.	313
Robinson, W.	297
Robles, L.	371, 372
Robles, P. S.	362
Rockwood, L. P.	116
Rodríguez, A.	370
Rodríguez Amieba, P.	277
Roessing, C.	382
Roger, L.	196
Rogers, D. P.	165
Roistacher, C. N.	554
Roizin, M. B.	198
Rojas Peña, E.	108
Rol, R.	38, 39, 260, 409
Roland, G.	269, 526
Rolinson, G. N.	400
Roman, H.	379
Rönnebeck, W.	347, 348
Roosen, P.	263
Rosberg, D. W.	434
Rose, F. J.	246
Rose, M. F.	184
Rose, R. E.	350
Rosen, H. R.	12, 185
Ross, H.	138, 202
Ross, S. D.	426
Rosser, D.	597
Rossetti, V.	380, 381, 431
Roth, E. R.	41
Rowell, J. B.	330
Roy, M.	323
Rudd Jones, D.	8, 253
Rudorf, W.	138, 378
Ruggieri, S.	29, 507
Ruigh, W. L.	395
Ruizhkov, W. L.	275
Rumph, A. F.	37
Rupert, J. A.	110
Russell, J.	447
Russell, R. C.	485, 600
Ryland, A. K.	7
Sabet, K. A.	8
Saccas, A.	146
Saccas, A. M.	63, 280, 457
Sackston, W. E.	433
Sadd, J. E.	184
Sakamoto, M.	175, 575
Salmon, E. S.	84
Salzmann, R.	533
Samson, R. W.	303
Sánchez Potes, A.	371, 372
Sandermann, W.	263
Sando, W. J.	235
Sandsted, R. F.	204
Sanford, G. B.	293
Sanwal, B. D.	355
Sarasola, J. A.	277
Saravi Cisneros, R.	1
Sarejanni, J. A.	172, 224, 256
Sawada, K.	577
Scala, A.	414
Scaramuzzi, G.	183, 191, 246
Scasso, J. M.	326
Schaal, L. A.	203, 454
Schachman, H. K.	404
Schaefer, E. E.	552
Schaible, L.	259
Schaller, C. W.	60
Schaper, P.	138, 139
Schärfe, E.	263
Scheffer, R. P.	418
Scheffer, T. C.	155
Schelling, C. L.	292
Schmelzer, K.	97
Schmidt, H.	502
Schmidt, T.	552
Schmitt, C. G.	27
Schneider, H.	432

	PAGES
Schoonover, W.	331
Schreier, O.	536, 624
Schreuder, J. C.	471
Schrödter, H.	587
Schulz, G.	94
Schumacher, G.	289
Schumacher, L.	533
Schuphan, W.	75
Schuster, M. L.	631
Schwaebel, F. X.	501
Schwartze, C. D.	337
Schwarz, D.	404
Schweizer, J.	210
Scossiroli, R.	13, 180
Scott, C. E.	152, 238
Scott, D. H.	440
Scotti, T.	76, 140
Seale, C. C.	489
Seaver, F. J.	460
Šebek, O. K.	450
Šebenik, M.	358
Sellke, K.	564
Sempio, C.	446, 450, 547
Sennels, N. J.	384
Serrano, C.	113
Servazzi, O.	185, 607
Severin, H. H. P.	18, 34, 43, 45
Shands, H. L.	601
Shanor, L.	283
Sharon, N.	621
Sharp, C. C. T.	575
Sharvelle, E. G.	388, 389
Shaw, C. D.	89
Shaw, C. G.	100, 149, 401
Shay, J. R.	189, 387
Shebeski, L. H.	482
Sheffield, F. M. L.	633
Shenefelt, R. D.	192
Shephard, C. Y.	425
Shepherd, H. W.	331
Sherwin, H. S.	45, 470
Shirk, H. G.	196
Shishelova, N. A.	230
Shoemaker, R. A.	553
Shterenberg, P. M.	623
Shukla, R. K.	567
Shulman, S.	218
Shumilenko, E. P.	430
Sijpesteijn, A. K.	392
Sík, K.	513
Silva, J. S.	399
Silverborg, S. B.	583
Siminoff, P.	448
Simkover, H. G.	192
Simmons, S. A.	17, 553
Simons, J. N.	158
Singer, R.	147
Singer, S. J.	211
Singh, B.	416, 501
Singh, R. S.	386
Sisler, H. D.	193
Sisler, W. W.	485
Sites, J. W.	542
Siu, R. G. H.	394
Skinner, F. A.	255
Skolko, A. J.	118, 528
Slykhuis, J. T.	492
Small, T.	635
Smith, A. H.	207
Smith, C. B.	303
Smith, D. C.	124
Smith, E.	243
Smith, F. F.	121, 284
Smith, G.	208
Smith, H. C.	20, 70
Smith, J. H.	1
Smith, K. M.	157, 238, 447
Smith, M. A.	247
Smith, N.	345
Smith, N. R.	423
Smith, P. F.	237
Smith, P. G.	274
Smith, R. J.	222, 223
Smith, W.	415
Smith, W. H.	449
Smyth, H. F.	392
Snyder, W. C.	164
Somm, H.	292
Sorsa, B.	584
Sparrow, F. K.	89
Spaulding, P.	524
Spencer, D.	436
Spencer, E. L.	213
Speroni, H. A.	382
Spit, J. M.	286
Sprague, R.	244, 287
Sprague, V. G.	18
Sprau, F.	397, 408, 535, 571
Spurr, R. A.	193
Srivastaya, H. C.	328, 609
Staehelin, M.	223
Stahmann, M. A.	90, 305, 404
Stakman, E. C.	10
Stanier, R. Y.	196
Stanković, D.	613
Stanton, T. R.	549
Stapley, J. H.	133
Stapp, C.	106, 319, 453, 485
Starkov, A. A.	113
Starling, T. M.	549
Starr, G. H.	415, 485
Starr, M. P.	130, 174, 560
Steenland, A. P.	142
Steere, R. L.	212, 368
Steib, R. J.	298
Steinberg, R. A.	356
Steindl, D. R. L.	297
Steinhaus, E. A.	552
Stelzner, G.	254
Sterling, J. D. E.	158
Stessel, G. J.	620
Steudel, W.	535, 586
Stevens, H.	180
Stevenson, F. J.	628
Stevenson, F. V.	489
Stevenson, G.	320
Stevenson, G. C.	297
Stevenson, J. A.	27
Stewart, K. E.	523
Stiles, W.	195
Still, G. W.	275
Stöckli, A.	292
Stoddard, E. M.	71, 106, 468
Stojanović, D.	612
Stokes, G. W.	396, 466
Stoll, K.	245, 560
Stoner, W. N.	47, 236, 259, 489, 543
Storch, K.	263
Storey, H. H.	7, 421
Stout, G. L.	227
Stover, L. H.	47
Stover, R. H.	150, 259, 462, 519, 520
Straszewska, Z.	595
Strickland, A. H.	427
Strong, F. C.	37
Strzemienski, K.	600

PAGES

Stubbs, L. L. 281, 382
Subba Rao, M. S. 514
Subba Rao, N. V. 629
Subramanian, C. V. 258
Suit, R. F. 181, 282, 542
Summers, E. M. 297
Suolahti, O. 93
Susickiy, L. A. 127
Sussman, A. S. 64, 115
Sutherland, W. W. 133
Šutić, D. D. 327
Sutton, M. D. 480
Suzuki, H. 201
Swaby, R. I. 445
Swank, G. 36, 44, 269
Świeżyński, K. 254
Sylvester, E. S. 158
Szkolnik, M. 237

Takahashi, W. N. 149, 302
Talbot, P. H. B. 460
Tandon, I. N. 410
Tani, T. 72
Tanikawa, W. 141
Tanrikut, S. 292
Tapke, V. F. 430
Tarr, S. A. J. 327
Taubitz, A. 161
Tavernetti, J. R. 548
Taylor, C. B. 594
Tehon, L. R. 193
Teitell, L. 136, 622
Teramoto, T. 353
Terrier, C. 532
Tessi, J. L. 277
Tetrault, P. A. 276
Thalmann, L. 140
Thames, W. H. 489
Thatcher, F. S. 512
Thatcher, L. E. 557
Thiem, T. 533
Thirumalachar, M. J. . 147, 401, 402, 436
Thom, C. 620
Thomas, C. A. . . . 206, 256, 459, 632
Thomas, H. E. 614
Thomas, H. R. 266, 366
Thomas, K. M. 14
Thomas, R. M. 568
Thomas, W. D. 43, 219
Thompson, A. 517
Thompson, W. L. 542
Thorn, J. A. 448
Thorne, D. W. 297
Thornton, H. G. 255
Thorpe, H. C. 481
Thung, T. H. . . . 122, 149, 165, 288
Thurston, J. M. 235
Tiffany, L. H. 267
Timnick, M. B. 619
Tims, E. C. 268
Tinline, R. D. 178
Tinsley, T. W. 200, 217, 313
Tirelli, M. 259
Tisdale, W. B. 265
Tisdale, W. H. 375
Tixier, P. 206
Todd, J. McA. 427
Toffano, W. B. 400
Togliani, F. 457, 495
Tokushige, Y. 359
Toledo, I. D. 382
Tomiyama, H. 177
Tomkins, R. G. 66

PAGES

Tompkins, C. M. 18, 43
Toole, E. R. 408
Torgeson, D. C. 152, 385
Townsend, G. R. 13
Trivelli, G. 532
Trocmé, S. 95
Troelsen-Johansen, G. 171
Troshchanin, P. G. 361
True, R. P. 37
Trumple, H. P. C. 183
Tsuyama, H. 175
Tufts, W. P. 242
Turnbull, J. 610
Turner-Graff, R. 621
Tyner, L. E. 600

Ullstrup, A. J. 379
Unwin, C. H. 198
Urquhart, D. H. 9
Urquijo Landaluze, P. 40
Uschdraweit, H. A. . . . 319, 607

Vago, M. C. 16
Vaheeduddin, S. 380
Valleau, W. D. 212, 356
Vallega, J. 277, 377
Vanbreuseghem, R. 503
Vandemark, J. S. 388
Van den Ende, G. 293
Van der Kerk, G. J. M. . . . 193, 392
Van der Klues, L. J. J. 588
Van der Meulen, J. G. J. 140
Vanderwalle, R. 101, 512
Van der Want, J. P. H. 122, 123, 149, 218, 405
Van der Weele, S. 197
Van Dillewijn, C. 298
Van Doren, A. 242
Van Hoof, H. A. . . . 80, 86, 101
Van Koot, Y. 96, 579
Vanselow, A. P. 114
Vanterpool, T. C. 91
Van 'T Sant, L. E. 96
Van Vloten, H. 260, 360
Varenica, E. T. 105
Varma, P. M. 6
Varner, R. W. 154
Vasil'evsky, N. I. 515
Vasiljević, Lj. A. 216
Vasquez, G. 40
Vasudeva, R. S. . . . 410, 531, 609
Vaughan, E. K. 292
Vaughn, J. R. 331
Venkatakrishnaiya, N. S. . . 98, 99
Venkataramani, K. S. 461
Venkatarayan, S. V. 493
Venkatram, C. S. 619
Verderevsky, D. D. 166, 167
Vergani, A. R. 326
Vergara Castillo, C. 373
Vergnano, O. 631
Verma, G. S. 132, 465
Vernon, J. W. 465
Verona, O. 308
Vicklund, R. E. 136
Vidali, A. 90, 461, 634
Viennot-Bourgin, G. . 209, 329, 503, 633
Viets, F. G. 141, 610
Vital, A. F. 488
Vlasveld, W. P. N. 126
Vlitos, A. J. 139
Vojtovich, K. A. 167
Völk, J. 533, 571
Vollema, J. S. 210, 513

PAGES

Voronkevich, I. V. 213
Vryonides, T. 48
Vuittenez, A. 590

Waddoups, V. 259
Wade, G. C. . . 3, 335, 439, 496, 613
Wadley, B. N. 21
Wagner, F. 547
Waibel, C. W. 237
Wain, R. L. 249, 250
Waksman, S. A. 395
Walker, A. J. K. 597
Walker, H. B. 260
Walker, J. C. 90, 163, 199, 273, 293, 312, 374, 418, 419, 435, 472, 585
Walker, R. B. 307
Walker, T. K. 252
Walkley, V. T. 570
Wallace, G. B. . . . 160, 162, 225
Wallace, H. A. H. 596
Wallace, J. M. 62, 432
Wallace, M. M. 160, 225
Wallen, V. R. 118, 528
Waller, S. 304, 581
Wallin, J. R. 27
Walter, J. M. 542, 636
Walter, T. E. 210
Wander, I. W. 542
Wang, C. S. 300
Wang, S.-C. 299
Wann, F. B. 297
Warcup, J. H. . . . 141, 296, 297
Warner, G. C. 284
Warren, J. R. 62, 255
Waterhouse, W. L. 330
Waterman, A. M. 638
Waterston, J. M. 198, 325
Watkins, G. M. 27
Watrous, R. C. 9
Watson, A. J. 131, 132
Watson, D. J. 200, 217
Watson, D. P. 329
Watson, D. W. 90
Watson, M. A. 217, 467
Watson, R. D. 44, 313
Weaver, E. P. 318
Weaver, L. O. 306
Webb, R. E. 199
Weber, A. 171, 393, 559
Webster, J. 89, 567
Wedgeworth, S. L. 235
Weeks, T. E. 127, 420
Wegener, W. 506
Wei, C. T. 418
Weigle, C. G. 227
Weil, C. S. 392
Weimer, J. L. 240, 589
Weinstein, W. H. 226
Weintraub, M. 363, 491
Weiss, M. G. 416
Welch, F. J. 227
Welch, J. E. 164
Wellman, F. L. . 15, 56, 183, 262, 374, 605
Wellman, R. H. 339
Welsh, J. N. 486
Welte, E. 314
Went, J. C. 151, 637
Wenzl, H. . . 81, 190, 342, 387, 415, 574
Werner, H. O. 204
Wernham, C. C. 551
Wessel, C. J. 196
West, E. 541
West, J. 425, 426

PAGES

Wester, R. E. 366
Weston, W. H. 135
Whaley, F. R. 341
Wheadon, E. A. 635
Whetstone, R. R. 443
White, D. P. 307
White, F. A. 432
White, L. T. 524
White, P. R. 8, 105
White, W. L. 296
Whitehead, M. D. 436
Whitehouse, H. L. K. 72
Wiant, J. S. 513
Wickerham, L. J. 354, 460
Wiebosch, W. A. 96
Wiederholt, W. 525
Wiehe, P. O. 144
Wienhues, F. 378
Wikén, T. 292
Wilcox, R. B. 24
Wildman, S. G. 211
Wiles, A. B. 273, 472
Wilhelm, A. F. 592
Wilhelm, S. 35, 561
Wilkins, W. H. 569
Wilkinson, R. E. 416
Willard, C. J. 557
Willeke, L. 134, 347
Williams, P. H. 222
Williams, R. C. 212
Williams, R. D. 188
Willson, A. E. 542
Wilson, A. R. 625
Wilson, E. E. 336
Wilson, I. M. 301
Wilson, J. 423
Wilson, J. D. . 8, 341, 437, 493, 624, 634
Wilson, J. H. 200
Wilson, R. D. 104
Wingard, S. A. 27
Winsor, A. P. 208
Winter, A. G. . . 134, 287, 296, 347
Winter, H. F. 499
Winters, H. F. 207, 362
Wolf, E. A. 543
Wolf, F. A. . . 59, 214, 391, 553, 577
Wolf, F. T. . . . 59, 415, 553, 577
Wolf, P. A. 183, 340
Wolfe, H. R. 22
Wollny, B. A. 450
Wood, F. C. 531
Wood, R. K. S. 270
Woodbine, M. 252
Woodbridge, C. G. 438
Woodcock, D. 290
Woodgate, A. E. 286
Woollcombe, T. M. 246
Work, P. 362
Worst, J. 344
Wright, D. N. 628
Wright, J. 8
Wright, J. M. 462
Wright, T. R. 243
Wu, Y. S. 482, 599
Wynd, F. L. 24

Yamada, M. 76, 203
Yamada, S. 151
Yamamoto, T. 455, 574
Yarwood, C. E. . . 32, 248, 316, 317, 474
Yerkes, W. D. 89, 100
Yoshii, H. 82, 403
Yoshino, M. 455, 574

	PAGES
Young, G. Y.	112
Young, H. C.	522
Young, H. E.	205, 629, 630, 631
Young, P. A.	27
Young, R. A.	186
Young, W. J.	288
Younkin, S. G.	418
Yurgenson, P. B.	608
Yusef, H. M.	30
Zäch, C.	49, 67
Zachos, D. G.	30, 172, 224
Zambettakis, C.	237
Zaumeyer, W. J.	218, 468
Zemit, V. E.	116
Zentmyer, G. A.	132, 289, 338, 553
Zillig, H.	533
Zink, F. W.	273
Zobrist, L.	123, 360, 613
Zogg, H.	57, 533
Zscheile, F. P.	322
Zycha, H.	91, 534, 583

GENERAL INDEX

AA 481 & 489, use of, against *Phytophthora infestans* on potato, 81.

AA 922, use of, against *Cercospora arachidicola* and *C. personata* on groundnut, 101; *Phytophthora infestans* on potato, 81.

Aacodule, use of, against *Phytophthora infestans* on potato, 81.

Aafertis, use of, against *Botrytis tulipae* on tulip, 479; *Peronospora destructor* on shallot, 478.

Aaforma, use of, against *Fusarium culmorum* on hyacinth, 479.

Aafuma, composition of, 26.

—, use of, against *Sclerotium delphinii* on *Iris*, 479; *S. tuliparum* on tulip, 479.

Aagrano, use of, against *Helminthosporium gramineum* on barley, 178; *Tilletia caries* and *T. foetida*, 177, 178; *Ustilago avenae* and *U. kolleri* on oats, 178; as a seed treatment for barley, 108; oats, 108, 540.

Aardisan, use of, against *Corynespora cassiicola* on cucumber, 479.

Aaturia, use of, against *Venturia inaequalis* and *V. pirina*, 477.

Aaventa, use of, against *Dothichiza populea* on poplar, 261; *Stereum purpureum* on apple, 287; *Venturia inaequalis*, 477, 534; *V. pirina*, 477.

Abavit U, use of, against *Cercospora beticola* on beet, 527.

Abies, *Pucciniastrum goeppertianum* on, in Alaska, 401.

— *alba*, *Nectria cucurbitula* on, in Norway, 92.

— *balsamea*, *Coniophora puteana* on, in Canada, 413.

— —, *Corticium galactinum* and *Fomes pinicola* on, in Canada, 51, 413.

— —, *Nectria cucurbitula* on, in Norway, 92.

— —, *Polystictus abietinus* on, in Canada, 51, 413.

— —, *Stereum chailletii* on, in Canada, 413.

— —, — *sanguinolentum* on, in Canada, 50, 51, 413.

— *concolor*, *Nectria cucurbitula* on, in Norway, 92.

— *grandis*, *Fomes annosus* on, in Norway, 92.

— *homolepis*, *Uredinopsis filicina* on, in Japan, 402.

— *nobilis*, *Nectria cucurbitula* on, in Norway, 92.

— *nordmanniana*, *Gibberellulina abietis* on, in Portugal, 146.

— —, *Nectria cucurbitula* on, in Norway, 92.

— *pindrow*, *Fomes pinicola* on, in Pakistan, 361.

— *sachalinensis*, *Corticium solani* on, in Japan, 154.

Absidia in soil in England, 142.

— on rice, 458.

Abutilon striatum, *Ascochyta abutilonicola*, *A. abutilonis*, and *Leptosphaeria eustoma* on, in France, 606.

Acacia, *Armillaria mellea* on, in Tanganyika Territory, 225.

—, *Fusarium* on, in U.S.S.R., 357.

—, *Ravenelia acaciae-senegalae*, *R. acacicola*, and *R. ajmerensis* on, in India, 355.

— *cunninghami*, *Colletotrichum acaciae* on, in Spain, 577.

— *decurrens*, *Corticium salmonicolor* on, in Mauritius, 538.

— *longifolia*, lucerne dwarf virus can infect, 168.

— *melanoxylon*, *Acrothecium*, *Fusarium caeruleum*, *Ganoderma lucidum*, and *Phomopsis* on, in India, 465.

(?) *Acalymma vittata* transmitting *Pseudomonas lacrymans*, 272.

Acanthocinus aedilis associated with *Ophiostoma polonicum*, 42.

Acaulopage baculispora and *A. ischnospora* on amoebae in Great Britain, 16.

Acenaphthene, use of, against *Bacterium tumefaciens* on *Tagetes patula* and tomato, 322.

—, variation in *Corynebacterium michiganense* and *Xanthomonas juglandis* induced by, 106.

Acer, *Armillaria mellea*, *Corticium vellereum*, *Fomes connatus*, and *F. igniarius* on, in Canada, 51.

—, *Fusarium* on, in U.S.S.R., 357.

—, *Hydnum septentrionale* on, in Canada, 51.

—, *Nectria cinnabarina* on, in Holland, 478.

—, *Pholiota adiposa* and *P. spectabilis* on, in Canada, 51.

—, *Polyporus glomeratus* on, in Canada, 51.

—, *Steganosporium piriforme* on, in Holland, 478.

—, *Ustulina deusta* on, in Canada, 51.

— *japonicum*, *Verticillium dahliae* on, in Holland, 478.

— *pseudoplatanus*, *Cryptostroma corticale* on, in England, 304, 582; *Coniosporium corticale* renamed, 304.

— —, *Eutypa acharii* on, in France, 638.

— *saccharum*, *Polyporus glomeratus* on, in Canada, 524.

— *tataricum*, *Fusarium* on, in U.S.S.R., 357.

Acetochlorosalicylic acid, use of, against *Tilletia caries*, 484.

Acetone, cucumber green-mottle mosaic virus resistant to, 420.

Acremoniella atra on maize in S. Africa, 460.

Acridine, toxicity of, to *Sclerotinia fructicola* and *Stemphylium sarciniforme*, 340.

Acrocomia totai, inactivation of tobacco mosaic virus by extracts of, 150.

Acrostalagmus obovatus on nematodes in Great Britain, 16.

Acrothecium in the air in India, 567.

— on *Acacia melanoxylon* in India, 465.

— on cotton textiles, control, 30.

— on hollyhock in India, 328.

Actidione, effect of, on *Ascochyta pisi*, 528; on *Pythium debaryanum* and *P. ultimum*, 449.

—, inactivation of, in soil, 344.

—, use of, against *Coccomyces hiemalis* on cherry, 129; *Helminthosporium vagans* on turf, 331; *Podosphaera* (?) *oxyacanthae* on cherry, 129; powdery mildews, 248; *Sclerotinia homoeocarpa* on *Agrostis palustris*, 331; *Sphaerotheca humuli* on *Rubus flagellaris*, 288; *Tilletia* on wheat, 428; as a treatment for cherry fruits, 614.

Actinomyces in soil in U.S.A., 139.

— on cotton textiles in U.S.A., 606.

— *scabies*, antibiotic properties of, 203.

— — in soil in U.S.A., 140.

— — on beet in Germany, 536.

— — on potato, 544; in Brazil, 511; Canada, 53; Chile, 573; New Zealand, 319; U.S.A., 204, 628; chlorogenic acid content in relation to resistance to, 454; control, 140, 203, 319; effect of, on *Fusarium oxysporum* and *Verticillium albo-atrum*, 203; on yield, 573; factors affecting, 319; varietal reaction to, 53, 77, 204, 510, 573, 628.

— *tumuli* on beet in England, 256.

Actinomycetes, antagonism of, to fungi, 255; to *Fusarium culmorum*, 255; *Pythium debaryanum*, 449; *Xanthomonas*, 545.

[Actinomycetes], effect of ox gall on, 514.
— in soil, control, 195.
—, production of antibiotics by, 621.
—, technique for standardizing colony size in, 255.
Adenine, effect of, on inhibitory activity of guanazolo, 318.
Aecidium garckeanum on *Hibiscus cannabinus* and *H. sabdariffa* in S. Africa, 184.
Aegilops, *Puccinia dispersa* on, 376.
—, (?) wheat mosaic virus on, in U.S.A., 177.
— *ovata*, *Puccinia dispersa* on, 377.
— —, — *graminis* can infect, 330.
Aeroplanes, use of, in dusting and spraying, 133, 393, 444.
Aerosol, use of, against beetles and cockroaches in herbaria, 619; with actidione, 428.
Agaricales, European, book on, 257.
—, spores of, in the air, in Great Britain, 619.
—, taxonomy of, 147.
Agave fourcroides, red rot of, in the Dominican Republic, 16.
— *sisalana*, see Sisal.
Ageratum coryzoides mosaic virus in Java, 165.
Agral, use of, as a spreader, 478.
Agrisol, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Agrocide, use of, against *Nematospora coryli* on bean, 162.
Agropyron, *Ophiobolus graminis* on, 548.
—, *Physoderma graminis* on, in U.S.A., 330.
—, wheat mosaic virus on, 235.
— *intermedium*, *Tilletia brevifaciens* on, 378.
— *repens*, *Physoderma* (?) *graminis* on, in U.S.A., 285.
— —, *Puccinia graminis* on, 278.
Agrosan C, use of, as a seed treatment for cereals, 546.
— G, use of, against damping-off of hollyhock, 328; as a seed treatment for wheat, 594.
— GN, effect of, on germination of tea seed, 578.
— —, use of, against damping-off of papaw, 501; *Pyrenophora avenae* on oats, 539; as a seed treatment for maize, oats, *Pennisetum typhoides*, and sorghum, 540.
Agrostis, *Sclerotinia homoeocarpa* on, 341.
— *alba*, *Puccinia graminis* on, 278.
— *palustris*, *Corticium solani* on, in U.S.A., 284.
— —, *Sclerotinia homoeocarpa* on, 331.
— *verticillata*, *Puccinia agrostidis* on, in Palestine, 146.
— *vulgaris*, *Puccinia graminis* on, 278.
Agrox, use of, against *Helminthosporium gramineum* on barley, 178; *Sphacelotheca sorghi* on sorghum, 181; *Tilletia caries* and *T. foetida*, 178; *Ustilago avenae* and *U. kolleri* on oats, 178; as a seed treatment for cereals, 546.
— C, use of, as a seed treatment for cereals, 546.
Ailanthus, *Verticillium dahliae* on, in France, 638.
Air, bacteria and yeasts in the, in the Arctic, 566.
—, fungi in the, 170, 504, 618; in the Arctic, 566; Canada, 28; China, 134; India, 540, 567.
Albidin, toxicity of, to fungi, 198.
Albizzia lebbek, *Colletotrichum compactum* on, in India, 634.
— —, *Ravenelia sessilis*, on, in India, 568.
Albucid, effect of, on cereal rusts, 176.
Alcohol, cucumber green-mottle mosaic virus resistant to, 420.
Alder (*Alnus*), *Pezicula cinnamomea* on, 516.
—, *Plagiostoma alnea* on, synonymy of, 89.
—, root nodules in, 36.
Aleurites, *Rhizoctonia* (?) *microsclerotia* on, 367.
Aleurodiscus in S. Africa, 460.
— *minnsiae*, dispersal mechanism in, 197.
Alfalfa, see Lucerne.
Allium ascalonicum, see Shallot.
— *cepa*, see Onion.
— *porrum*, see Leek.
— *sativum*, see Garlic.
Almond (*Prunus amygdalus*), *Bacterium tumefaciens* on, in U.S.A., 230.
—, plum mosaic virus can infect, 336.
—, *Puccinia pruni-spinosae* on, in Tanganyika Territory, 226; geographical distribution of, 160.
Alnus, see Alder.
Aloë, *Uromyces aloes* on, in Tanganyika Territory, 225.
Alopecurus pratensis, *Calonectria nivalis* on, in Finland, 556.
— —, manganese deficiency in, in Switzerland, 387.
— —, *Puccinia graminis* on, 278.
— —, *Typhula*, *T. borealis*, and *T. itoana* on, in Finland, 556.
Alpha-acetyl-ethyl ester of hydrocinnamic acid, use of, as fungicide, 26.
— -alanin, effect of, on *Bacterium tumefaciens*, 106.
— -naphthalene-acetic acid, use of, with semesan, 113.
— -nitronaphthalene, effect of, on *Corynebacterium michiganense* and *Xanthomonas juglandis*, 106.
— -phenyl acetoacetonitrile, use of, as a fungicide, 27.
— 1, 2, 3, 4-tetrahydro-, 9-phenanthrenemethanol hydrochloride, use of, as a fungicide, 26.
Alsike, see Clover.
Alternaria in the air, 504; in Canada, 28; China 134; India, 567.
— in roots of plants, 623.
— on bean in U.S.A., 44.
— on *Calendula officinalis* in U.S.A., 239.
— on cotton textiles, 326; in U.S.A., 606.
— on flax in Australia, 117; Northern Ireland intercepted from Canada, 593.
— on hollyhock in India, 328.
— on pine in Canada, 412; U.S.S.R., 357.
— on raspberry in U.S.A., 561.
— on rice in India, 505.
— on tomato; 265; in Italy, 521; varietal reaction to, 542.
— on turnip, 265.
— on wheat in India, 55; Mexico, 372; U.S.A., 112.
— *brassicae* on colza in Sweden, 103.
— — on Cruciferae in Holland, 477.
— — on *Lunaria annua* in U.S.A., 239.
— — on rape in Sweden, 103.
— — on turnip in Kenya, 173.
— *brassicicola* on Brussels sprouts in Denmark, 224.
— — on cabbage in Denmark, 224; U.S.A., 96, 541; control, 444.
— — on cauliflower in Denmark, 224; U.S.A., 541.
— — on *Iberis umbellata*, kale, kohlrabi, and *Matthiola incana* in Denmark, 224.
— — on tomato in Denmark, 224; control, 340.
— — on wallflower in Denmark, 224.
— —, use of, in testing fungicides, 444.
— *cucumerina* on cantaloupe in U.S.A., 417.
— *dauci* on carrot in U.S.A., 164; control, 563.
— *dianthi* on carnation, varietal reaction to, 553.
— — on *Saponaria vaccaria* in U.S.A., 239; *A. saponariae* synonym of, 239.

[*Alternaria*] *dianthicola* on carnation in U.S.A., 239.
— *fasciculata* on *Gladiolus* in Canada, 17.
— *humicola* on peony in U.S.A., 329.
— *nucis* on walnut in Czechoslovakia, 40.
— *porri* on *Gerbera jamesoni* in U.S.A., 239.
— — on onion in Kenya, 173.
— *saponariae* synonym of *A. dianthi*, 239.
— *senecionis* on cineraria in Italy, 186; U.S.A., 239.
— *solani*, antagonism of actinomycete to, 255.
— —, inhibition of, by helixin, 620; by sorbose, 137.
— — on potato in Brazil, 511; Germany, 534; Mexico, 373; U.S.A., 392; control, 392; study on, 534; varietal reaction to, 534, 573.
— — on tomato, 535; in the Channel Islands, 635; Germany, 584; Italy, 521; Jamaica, 8; U.S.A., 289, 303, 392, 520, 620; control, 342, 392, 521, 542, 564, 584, 620, 635; varietal reaction to, 542.
— —, production of alternaric acid by, 305.
— —, use of, in testing fungicides, 193, 443, 445.
— *tenuis* in flour in U.S.A., 345.
— — on apple in Italy, 125; *Pleospora alternariae* f. *fusca* perfect state of, 125.
— — on barley in Canada, 596.
— — on beet in Germany, 585.
— — on oats in Canada, 596.
— — on *Taraxacum kok-saghyz* in U.S.S.R., 84.
— — on wheat, 177; in Canada, 596.
— —, toxicity of debena to, 444.
— —, use of, in testing fungicides, 342.
— *tomato* on tomato, 564.
— *zinniae* on *Zinnia elegans* in U.S.A., 239; Yugoslavia, 594.
Alternaric acid, effect of, on various plants, 305.
Althaea rosea, see Hollyhock.
Aluminium sulphate, effect of, on *Corticium solani* on larch, *Fusarium* on *Cryptomeria japonica*, and *Pythium* on *Paulownia tomentosa*, 153.
Alveophoma, taxonomy of, 577.
Alvesco, use of, against *Venturia inaequalis* and *V. pirina*, 477.
Amaranthus tricolor, red currant ring spot virus can infect, 245.
5-amino-acenaphthene, effect of, on *Corynebacterium michiganense* and *Xanthomonas juglandis*, 106.
Ammonium compounds, use of, against *Corynebacterium sepedonicum*, 53.
— dinitrocresolate, use of, against *Taphrina pruni* on plum, 336.
— fluoride, use of, as a timber preservative, 525.
— molybdate, use of, against molybdenum deficiency in cauliflower, 96; in clover, lucerne, and vegetables, 104.
— sulphate, see also Fertilizers.
Amoebae, *Acaulopage baculispora*, *A. ischnospora*, and *Stylopage rhicnacra* on, in Great Britain, 16.
Amorpha, *Fusarium* on, in U.S.S.R., 357.
— *fruticosa*, *Corticium solani* on, in Japan, 154.
Ampelopsis, *Verticillium dahliae* on, in Holland, 478.
Amphorophora rubi transmitting black raspberry mosaic, 615; raspberry 'leaf mottle' virus, 439; raspberry mosaic, 1, 615; strawberry viruses, 131.
Amyl pyridine, effect of, on *Fusarium bulbigenum* var. *lycopersici*, 393.
Ananas comosus, see Pineapple.
Anchusa, cucumber mosaic virus on, in England, 238.
[*Anchusa*], *Puccinia dispersa* on, 376, 377.
Anemone, *Puccinia pruni-spinosae* on, in Switzerland, 223, 613.
Aniline blue, effect of, on *Bacterium tumefaciens*, 106.
3-anilinomethyl-2(3H)-benzothiazolethione, use of, as a fungicide, 26.
Annona cherimolia, *Phomopsis anonae* on, in Spain, 577.
Anthocephalus cadamba, *Gloeosporium anthocephali* on, in India, 410.
Anthraquinone, fungicidal properties of, 340.
Antibiotic from *Aucuba japonica*, 347.
— 15 or 15 n, use of, against *Bacterium armeniaca* on apricot and peach, 621; *Pseudomonas syringae* on lemon and orange, 622; *Xanthomonas malvacearum* on cotton, 621.
— XG, effect of, on *Ascochyta pisi*, 528.
Antibiotics, adsorption of, by bentonite, 255.
—, effect of, on bacteria, 74, 480; on fungi, 74; on the rhizosphere, 134; on virus diseases, 319.
— from actinomycetes, 621; *Aucuba japonica*, 134; bacteria, 449; basidiomycetes, 583; *Cephalosporium*, 345; fungi, 449; myrtle and tulip, 134.
—, list of, 344.
—, mode of action of, 196.
—, review of literature on, 196, 620.
—, use of, against bacteria and fungi, 253; as food preservatives, 29; in plant pathology, 29, 319.
Anticarie, use of, against *Tilletia caries* and *T. foetida*, 178.
'Antimycosis', use of, against moulds in store rooms, 198.
Antirrhinum, *Peronospora antirrhini* on, in U.S.A., 553; geographical distribution of, 160.
—, *Phyllosticta antirrhini* on, in Mauritius, 538.
—, *Puccinia antirrhini* on, in Israel, 563; U.S.A., 284.
Anuraphis padi transmitting *Dahlia* mosaic virus, 369.
Aphanomyces on *Viola* in England, 256.
— *euteiches* on pea in England, 256.
— *raphani* on radish in Germany, 536.
Aphids, *Aspergillus depauperatus* on, in the Pacific Northwest, 116.
—, *Empusa aphidis* on, in India, 634.
—, *Entomophthora aphidis* on, in England, 256.
— transmitting beet mosaic virus, 467; beet yellows virus, 169; chilli mosaic virus, 419; *Hyoscyamus niger* mosaic virus, 169; lupin virus disease, 241; potato leaf roll virus, 200, 451; (?) *Rubus* stunt virus disease, 288.
Aphis apii transmitting *Primula* mosaic virus, 18; radish mosaic virus, 43.
— *craccivora* transmitting groundnut rosette virus, 7, 47, 315.
— *fabae*, beneficial effect of beet mosaic virus on, 98.
— —, *Empusa planchoniana* on, in England, 256.
— — transmitting beet yellows virus, 587; dahlia mosaic virus, 121; poppy mosaic virus, 370.
— *ferruginea-striata* transmitting *Primula* mosaic virus, 18; radish mosaic virus, 43.
— *gossypii* transmitting cantaloupe mosaic virus, 368; cucumber mosaic virus, 119; *Dahlia* mosaic virus, 121; *Primula* mosaic virus, 18; radish mosaic virus, 43.
(?) — *idaei* transmitting raspberry mild vein chlorosis, 614.
— *maidis* transmitting cucumber mosaic virus and maize mosaic virus, 119; sugar-cane mosaic virus, 143, 375.

[*Aphis*] *rumicis* transmitting *Erodium* red leaf virus, 19; *Primula* mosaic virus, 18; radish mosaic virus, 43.
Apiognomonia errabunda, synonymy of, 89.
Apium graveolens, see Celery.
Aplanobacter hordei can infect oats and wheat, 180.
— — on barley in Japan, 180.
Apple (*Malus pumila*), *Alternaria tenuis* on, in Italy, 125; *Pleospora alternariae* f. *fusca* perfect state of, 125.
—, bacteria on, in England, 570.
—, *Bacterium tumefaciens* on, transmission of, to aster and *Kalanchoe*, 423.
— bitter pit in Holland, 287.
—, *Botrytis cinerea* on, in Denmark, 66, 560; England, 570; Norway, 244; U.S.A., 190.
— brown heart in Denmark, 66.
—, coal tar fumes causing injury to, in Italy, 29.
—, *Corticium bisporum* on, in Norway, 244.
—, — *salmonicolor* on, in S. Africa, 460.
—, *Coryneum foliicola* on, in Italy, 495.
—, *Diaporthe perniciosa* on, in Holland, 477.
—, *Elsinoe piri* on, in Argentina, 334; Chile, 354.
—, *Erwinia amylovora* on, in U.S.A., (?) 333, 335; varietal reaction to, 227, 333, 335.
— flat limb virus in Denmark, 172.
—, *Fusarium avenaceum* on, in Norway, 244.
—, *Gloeodes pomigena* on, in Denmark, 560; control, 72, 560.
—, *Gloeosporium album* on, in Denmark, 66, 560; Norway, 244.
—, *Glomerella cingulata* on, in Denmark, 560; Norway, 244; Southern Rhodesia, 475; control, 72, 475, 560.
— green crinkle disease in New Zealand, 612.
—, *Gymnosporangium tremelloides* on, in Norway, 244, 559.
—, Jonathan spot of, in Denmark, 66; U.S.A., 333.
—, *Leptothyrium pomi* on, in Norway, 244.
—, lime-sulphur injury to, effect of rootstock on, 189.
— low temperature breakdown in Denmark, 66.
—, magnesium deficiency in, in Holland, 287; Norway, 559.
—, manganese deficiency in, in Canada, 438; Norway, 559.
— mosaic virus in England, 440; Kenya, 173.
—, *Mucor hiemalis* and *M. piriformis* on, in Norway, 244.
—, mycorrhiza of, in U.S.S.R., 622.
—, *Nectria galligena* on, in Chile, 373; Norway, 559; Syria, 126; control, 438, 559; study on, 438; varietal reaction to, 244, 373; *Zeuzera pyrina* associated with, 126.
—, *Neofabraea perennans* on, in Denmark, 560.
—, *Penicillium* on, in Denmark, 559; England, 570.
—, — *expansum* on, in Denmark, 66, 559; Norway, 244; control, 559, 610; handling in relation to, 243.
—, *Peyronellaea glomerata* on, in Italy, 495; synonymy of, 495.
—, *Pezicula crataegi* on, in Chile, 373.
—, *Phacidiella discolor* on, in Holland, 477; Norway, 244.
—, *Phialophora goidanichii* on, in Italy, 494.
—, *Phoma* on, in Norway, 244.
—, — *pomi* on, control, 72.
—, *Physalospora obtusa* on, in England, 190; effect of sorbose on, 137.
—, *Phytophthora cactorum* on, in New Zealand, 20; Norway, 244.
[Apple], *Podosphaera leucotricha* on, in Belgium, 243; Canada, 51; France, 612; Holland, 479; Northern Ireland, 593; Switzerland, 495; Tasmania, 496; control, 51, 242, 243, 247, 248, 479, 495, 496; factors affecting, 243; varietal reaction to, 243.
—, *Polyporus hispidus* on, in Portugal, 92.
—, raspberry white root rot can infect, 440.
— rosette, see Zinc deficiency in.
— rubbery wood virus in Denmark, 172; England, 558.
— scald, 610; in Denmark, 66; U.S.A., 242; control, 242.
—, *Schizophyllum commune* on, in Chile, 354; Greece, 256.
—, *Sclerotinia fructicola* on, in U.S.A., 388.
—, — *fructigena* on, in Denmark, 559; England, 191, 437; Norway, 244; control, 559, 610; earwig injury in relation to, 437; factors affecting, 191, 437; forms of, 437; production of carbon dioxide by, 49.
—, — *laxa* on, in Denmark, 103; Norway, 559; Sweden, 103.
—, *Septobasidium pseudopedicellatum* on, in Peru, 208.
— soft scald in U.S.A., 333.
—, *Stemphylium consortiale* on, in Norway, 244.
—, *Stereum purpureum* on, in Holland, 287; U.S.A., 244, 287; control, 287; factors affecting, 245; varietal reaction to, 244.
— storage disorders in U.S.A., 333.
—, *Trichothecium roseum* on, in Denmark, 560.
—, *Valsa leucostoma* on, in Chile, 354.
—, *Venturia inaequalis* on, in Austria, 190, 536; Belgium, 126; Canada, 50, 53, 67; Denmark, 559; Eire, 243; England, 189, 290, 610, 611; Holland, 126, 286, 477; Italy, 496; Norway, 559; S. Africa, 334; Switzerland, 67; Tasmania, 496; U.S.A., 189, 333, 387, 392, 436; Yugoslavia, 333, 334, 594, 612; antagonism of micro-organisms to, 197, 244, 255; ascospore discharge in, 333, 334; control, 20, 53, 67, 72, 126, 133, 189, 190, 244, 247, 285, 333, 334, 341, 392, 477, 534, 559, 563, 564, 610, 611, 612, 620; culture of, 341; factors affecting, 189, 334, 536, 559, 610; spray warnings against, 126, 334, 496; technique for detecting in leaves, 110; for testing resistance to, 50; varietal reaction to, 66, 189, 243, 333, 387.
— virus diseases in Kenya, 173.
— yeasts in England, 570.
—, zinc deficiency in, in Canada, 50, 103; Denmark and France, 494.
Apple juice, micro-organisms in, in England, 570.
Apricot (*Prunus armeniaca*), *Bacterium armeniaca* on, in U.S.S.R., 621.
—, *Clasterosporium carpophilum* on, factors affecting, 243.
—, *Cytosporina* on, in S. Australia and Tasmania, 497.
— freckle blemish in S. Africa, 537.
—, *Fusicoccum persicae* on, in Portugal, 301.
—, manganese deficiency in, in Canada, 438.
— mosaic virus in Denmark, 172; Yugoslavia, 335.
— necrotic ring spot virus in U.S.A., 21.
—, plum mosaic virus on, in New Zealand, 336; transmission of, by budding, 336; to almond, cherry, nectarine, and *Prunus cerasifera* var. *pissardi*, 336.
—, *Puccinia pruni-spinosae* on, geographica distribution of, 160.
—, *Sclerotinia fructicola* on, in Canberra, 612; Tasmania, 335.

[Apricot, *Sclerotinia*] *fructigena* and *S. laxa* on, control. 127.
—, virus diseases of, in Yugoslavia, 613.
Arachis hypogaea, see Groundnut.
Arasan, use of, against clover black patch disease, 286; *Fusarium oxysporum* f. *gladioli* on *Gladiolus*, 119; *Helminthosporium sativum* on wheat, 50; *Ophiobolus miyabeanus* on rice, 372; *Puccinia carthami* on safflower, 459; *Pythium ultimum* on radish, 51; *Sclerotinia gladioli* on *Gladiolus*, 120; *Sphacelotheca sorghi* on sorghum, 181, 373; as a seed treatment for cotton, 422; groundnut, 532; maize, 14, 61, 391; for rice, 575; soy-bean, 220, 267, 587.
— SF, use of, as a seed treatment for soy-bean, 220.
Arathane, use of, against *Sphaerotheca humuli* on raspberry, 288.
Araucaria araucana and *A. cunninghamii*, *Botryosphaeria ribis* on, in Mauritius, 538.
— *excelsa*, *Phytophthora parasitica* on, in Peru, 208.
Arbutus unedo, *Didymosphaeria dimatospora* and *D. rhododendri* on, in Portugal, 301.
— —, *Polyporus ochroleucus* on, in Portugal, 93.
Arcal, use of, with debena, 444.
Arctagrostis latifolia, nematodes on, mistaken for ergot in Canada, 285.
Aretan, use of, against *Botrytis cinerea* on coffee, 422; *Ceratostomella paradoxa* on sugar-cane, 537; *Corynespora cassiicola* on cucumber, 479.
Aristamide, effect of, on cereal rusts, 176.
Aristolochia durior, cucumber mosaic virus on, in Sweden, 417.
Armillaria mellea, antagonism of, to basidiomycetes, 583.
— —, effect of ustilagic acid on, 448.
— — on *Acacia* in Tanganyika Territory, 225.
— — on *Acer* in Canada, 51.
— — on blackberry in U.S.A., 24.
— — on cacao in New Guinea, 9.
— — on camphor in Tanganyika Territory, 225.
— — on *Casuarina* in Mauritius, 537; Tanganyika Territory, 225.
— — on cherry, varietal reaction to, 69.
— — on *Ocotea usambarensis* in Tanganyika Territory, 225.
— — on pine in Tanganyika Territory, 225.
— — on *Prunus mahaleb*, 69.
— — on spruce in Germany, 534.
— — on tea in Mauritius, 538.
— — on *Tsuga heterophylla* in Canada, 215.
— — on walnut in U.S.A., 463.
Arrhenatherum, *Microthyrium culmigenum* on, in Great Britain, 89.
— *elatius*, manganese deficiency in, in Switzerland, 387.
— —, *Puccinia graminis* on, 278.
— *palaestinum*, *Puccinia arrhenathericola* on, in Palestine, 146.
Artemisia vulgaris var. *heterophylla*, lucerne dwarf virus can infect, 168.
Arthrobotrys conoides on nematodes in Great Britain, 16.
— *robusta* on nematodes in England, 283.
Artichoke (*Cynara scolymus*), *Ascochyta cynarae* on, in Tanganyika Territory, 225.
Arum Lily, see *Zantedeschia*.
Arundinaria, see Bamboo.
Aryloxyalkylcarboxylic aid, use of, against *Botrytis cinerea* and *B. fabae* on broad bean, 249, 250.
Asclepias syriaca, *Phyllactinia suffulta* on, in Switzerland, 148.
Ascochyta on bean in U.S.A., 365.
— on *Hibiscus cannabinus* in U.S.A., 489.
— on *Phaseolus lunatus* in U.S.A., 365.
— *abelmoschi* on *Hibiscus esculentus*, comparison of, with *A. phaseolorum*, 366.
— *abutilonicola* and *A. abutilonis* on *Abutilon striatum* in France, 606.
— *agropyrina* on turf in U.S.A., 331.
— *cichorii* on chicory in Greece, 256.
— *cynarae* on artichoke in Tanganyika Territory, 225.
— *desmazieri* and *A. elymi* on turf in U.S.A., 331.
— *gossypii* on cotton in U.S.A., 282, (?) 356.
(?) — — on tobacco in U.S.A., 356.
— *graminea* on turf in U.S.A., 331.
— *graminicola* on cereals in Switzerland, 533.
— — on wheat, 58.
— *hordei* on turf in U.S.A., 331.
— *imperfecta* on lucerne in Canada, 52; Denmark, 172.
— — on *Medicago lupulina* in Denmark, 172.
— — on *Melilotus alba* and *M. officinalis* in Canada, 493.
— *maydis* on maize in French Equatorial Africa, 280, 281.
— *paeoniae* on peony in France, 606.
— *phaseolorum* on bean in Peru, 208; Tanganyika Territory, 225; comparison of, with *A. abelmoschi*, 366.
— — on *Phaseolus angularis*, 458.
— *pinodella*, control, 444.
— — on pea in Argentina, 344; Germany, 584, 587; Holland, 471; Tasmania, 3; control, 344, 584; effect of, on yield, 344; germination in, and spore discharge, 587.
— *pisi* can infect vetch, 268.
— — on pea in Canada, 268, 528; Denmark, 224; England, 264; Germany, 584; Tasmania, 3; control, 264, 584; effect of antibiotics on, 528; physiologic races of, 268; varietal reaction to, 268.
— *rabiei* on *Cicer arietinum* in Algeria, 229.
— *sorghi* on turf in U.S.A., 331.
— *trachelospermi* on *Trachelospermum jasminoides* in Italy, 492.
— *utahensis* on turf in U.S.A., 331.
— *zeae* and *A. zeina* on maize in French Equatorial Africa, 281.
Ascomycetes in soil, technique for isolating, 296.
Ascu, use of, as a timber preservative, 95.
Ash (*Fraxinus*), *Encoelia fascicularis* on, culture of, 516.
—, *Fusarium* on, in U.S.S.R., 357.
—, *Verticillium dahliae* on, in Holland, 478.
Asparagus, *Fusarium* on, control, 224.
—, *Puccinia asparagi* on, in Holland, 478; Portuguese W. Africa, 302; control, 478.
— *plumosus*, *Phomopsis asparagicola* on, in Spain, 577.
— *sprengeri*, effect of factory gases on, in Germany, 571.
Aspen (*Populus* spp.), *Didymosphaeria populina* on, in U.S.A., 39.
—, *Fomes igniarius* on, in U.S.A., 260.
—, *Hypoxylon pruinatum* on, in U.S.A., 39.
—, *Rosellinia aquila* on, in France, 209.
—, *Valsa sordida* on, in Germany, 523.
Aspergillus, antagonism of, to *Venturia inaequalis*, 244.
— in the air in India, 567.
— in the soil in England, 297.
— on cork disks in New Zealand, 346.
— on cotton textiles in U.S.A., 606.
— on flax in Australia, 117.

[*Aspergillus*] on flour in India, 505.
— on paint in U.S.A., 136.
— on rice in India, 505.
— on sweet potato flour in India, 505.
— on wheat in U.S.A., 112.
—, spore dispersal in, 251.
— *candidus* on flour in India, 505; U.S.A., 345.
— — on maize, stored, in U.S.A., 602.
— — on sweet potato flour in India, 505.
— — on wheat in U.S.A., 112.
— *clavatus* on cotton textiles, 506.
— *depauperatus* on aphids in the Pacific Northwest, 116.
— *fischeri* in the soil in England, 297.
— *flavipes* can infect *Platysamia cecropia*, 115.
— —, production of fat by, 252.
— *flavus* can infect *Platysamia cecropia*, 115.
— — on cellulose fibres, 569.
— — on electrical insulating tapes, 136.
— — on flour in U.S.A., 345.
— — on Lepidoptera, 116.
— — on maize, stored, in U.S.A., 602.
— — on *Platysamia cecropia* in U.S.A., 64.
— — on wheat in U.S.A., 112.
— —, production of fat by, 252.
— —, use of, in testing fungicides, 29.
— *flavus-oryzae* on rice, 458.
— *fumigatus* in the air in India, 567.
— — on cellulose fibres, 569.
— — on cotton textiles, 506; control, 30.
— — on wheat, stored, in Canada, 599.
— *glaucus* in the air in India, 567.
— — on building materials in England, 507.
— — on cotton textiles, 506.
— — on flour in India, 505; in U.S.A., 345.
— — on maize, stored, in U.S.A., 602.
— — on sweet potato flour in India, 505.
— — on wheat in U.S.A., 112.
— *luchuensis* on *Platysamia cecropia*, 115; in U.S.A., 64.
— *melleus* on tobacco in Sierra Leone, 476.
— *nidulans*, effect of rimocidin on, 395.
— — on cotton textiles, 506.
— —, production of fat by, 252.
— *niger*, antagonism of, to *Venturia inaequalis*, 244.
— —, culture of, 93.
— —, effect of freeze drying on, 28; of iron on production of citric acid by, 395; of rimocidin on, 395; of ustilagic acid on, 448.
— —, genetics of, 567.
— — in the air in India, 567.
— —, inhibition of, by *Bacillus subtilis*, 621; thiram, 193.
— — on building materials in England, 507.
— — on cellulose fibres, 569.
— — on cotton textiles, 327; control, 30.
— — on electrical insulating tapes, 136.
— — on flour in India, 505; U.S.A., 345.
— — on groundnut in India, 589; Tanganyika Territory, 47, 320.
— — on leather in England, 75.
— — on mango in India, 132.
— — on onion in Sierra Leone, 476.
— — on sweet potato flour in India, 505.
— — on wheat in U.S.A., 112.
— —, production of vitamin B2 by, 252.
— —, toxicity of albidin to, 198; fungicides to, 392; of 8-hydroxyquinoline to, 445; of peroxyacetic acid to, 637; of 4 *sec*-butylphenol, 2, 4, 5-trichlorophenol and *o*-phenylphenol to, 340.
— —, use of, against *Tilletia caries*, 234; in determining available trace elements in soil, 32; in testing fungicides, 26, 29.
[*Aspergillus*] *ochraceus* on flour in U.S.A., 345.
— — on wheat in U.S.A., 112.
— *oryzae* can infect *Platysamia cecropia*, 115.
— — on paint, control, 136.
— *parasiticus* can infect *Platysamia cecropia*, 115.
— *repens* on leather in England, 75.
— *sydowi* in sodium carboxymethyl cellulose solutions in Sweden, 345.
— — on cellulose fibres, 569.
— *tamarii* can infect *Platysamia cecropia*, 115.
— — on wheat in U.S.A., 112.
— *terreus* on cellulose fibres, 569.
— — on flour in U.S.A., 345.
— — on leather in England, 75.
— —, toxicity of albidin to, 198.
— *varians* on cotton textiles, 506.
— *versicolor* in sodium carboxymethyl-cellulose solutions in Sweden, 345.
— — on flour in U.S.A., 345.
— — on wheat in U.S.A., 112.
Asphalt, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Aster (*Callistephus chinensis*), *Bacterium tumefaciens* can infect, 423.
—, carnation mosaic virus can infect, 122.
—, *Microascus trigonosporus* on, in Denmark, 224.
— yellows virus, incubation period of, in *Macrosteles divisus*, 48.
— — — on aster, multiplication of, in *Macrosteles divisus*, 221, 475; transmission of, by *M. divisus*, 48.
— — — on *Chrysanthemum* in U.S.A., 284.
— — — on *Primula obconica*, transmission of, by *Macrosteles divisus*, 18.
Aster acer, *Hendersonia asteris* on, in France, 209.
Asterina in Brazil, 33.
Asterostroma ochroleucum on timber in Great Britain, 154.
Astragalus, *Uromyces* on, 146.
Atmospheric pollution, effect of, on plant growth, 291.
Aucuba japonica, antibiotic from, effect of, on the rhizosphere, 134; on soil bacteria, 347.
Auerswaldia excoriata on coffee in the Ivory Coast, 282.
Auramine, use of, against *Xanthomonas phaseoli* on bean, 469.
Aurantiliocladin, effect of, on *Botrytis allii*, 569.
Aureomycin, effect of, on *Corynebacterium*, 54, 480; *Pseudomonas* and *P. glycinea*, 480; *Xanthomonas*, 54, 480.
—, properties of, 345, 621.
— hydrochloride, effect of, on *Bacterium tumefaciens*, 175; *Xanthomonas phaseoli*, 468.
Auricularia mesenterica var. *lobata* on timber in Portugal, 92.
Autographa californica, *Spicaria gracilis* on, in the U.S.A., 116.
Auxins, effect of, on *Fusarium oxysporum* var. *cubense*, 396.
Avena, see Oats.
Avocado pear (*Persea americana*), *Botryosphaeria ribis* on, in U.S.A., 132.
— —, (?) *Mycosphaerella perseae* on, in Mexico, 289.
— —, *Phytophthora* on, in S. Africa, 537.
— —, — *cinnamomi* on, in Mexico, 289; Peru, 25, 192, 616; U.S.A., 338; U.S.A., intercepted from Costa Rica, 289; control, 192, 616; factors affecting, 338.
— —, *Sphaceloma perseae* on, in U.S.A., intercepted from Mexico, 132; geographical distribution of, 160.

Azalea, see *Rhododendron*.
Azotobacter chroococcum on pear in Germany, 127.

Baccharis pilularis, lucerne dwarf virus can infect, 168.
Bacillus anthracoides and *B. brevis*, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271.
— *cereus* in soil in relation to tobacco frenching, 356.
— *circulans*, production of circulin by, 276.
— *dendroides*, antagonism of, to *Botrytis cinerea*, 270; *Corticium solani*, 271.
— *megatherium*, antagonism of, to *Botrytis cinerea*, 270; *Corticium solani*, 271.
— — on potato, physiologic study on, 320.
— *mesentericus*, antagonism of, to *Corynebacterium fascians*, 229.
— —, suspension of life of spores of, 28.
— *mycoides* on potato, physiologic study on, 320.
— *polymyxa*, effect of soil inoculation with, on *Pseudomonas solanacearum*, 356.
— — on chilli in Israel, 362.
— — on mushroom in England, 531.
— *stearothermophilus*, use of, in testing food preservatives, 29.
— *subtilis*, antagonism of, to *Aspergillus niger*, 621; *Botrytis cinerea* and *Corticium solani*, 270–1, 395; *Fusarium udum*, 540, 609; *Helminthosporium sacchari*, 515; *Penicillium roqueforti*, 621; various fungi, 395.
(?) — — on banana and mango in India, 390.
— — on potato, physiologic study on, 320.
(?) — — on tomato in India, 390.
Bacitracin, properties of, 621.
Bacteria, antagonism of, to fungi, 269, 347, 375, 449; to wood pulp fungi, 155.
—, cytology of, 196.
—, effect of antibiotics on, 74, 196, 253, 345, 347.
—, enzymatic adaptation in, 196.
— in the air in the Arctic, 566.
— in plant tumour tissues, 8.
— in soil in Japan, 175.
—, lysis of, 55.
—, metabolism of, 196.
—, mutation in, 319.
—, mycolytic, use of, in control of plant diseases, 130.
— on apple in England, 570.
— on bean, control, 265.
— on cotton textiles, 327, 394.
— on filter paper, 447, 450.
— on *Pyrausta nubilalis* in U.S.A., 552.
— on stone fruits in S. Africa, 537.
— on wheat, 112, 177; in Canada, 52; antagonism of, to *Helminthosporium sativum*, 52.
—, stomatal droplets in relation to, 284.
—, technique for staining flagella of, 229.
Bacterial plant pathogens, manual of, 105.
— soft rot of potato following *Phytophthora infestans*, 253.
— wilt of onion in Mauritius, 538.
Bacteriophage of *Erwinia carotovora*, 107; *Xanthomonas pruni*, 423.
—, use of phase-contrast microscope for study of, 55.
Bacterium armeniaca on apricot and peach in U.S.S.R., 621.
— *aroideae*, biochemical study of, 594.
— *beticola* on beet, production of protopectinase by, 230.
— *carotovorum* var. *melonis*, biochemical study of, 594.
[*Bacterium*] *cattleyae* on *Cattleya* and *Phalaenopsis* in U.S.A., 186.
— *cinnamomum* on rice, 458.
— *coli*, antagonism of, to *Botrytis cinerea*, 270; of basidiomycetes to, 569.
— *gypsophilae*, biochemical study of, 594.
— *marginatum* on *Gladiolus* in Canada, 54; U.S.A., 119.
— *polymyxa*, production of protopectinase by, 230.
— *rubefaciens* can infect potato, 253.
— *salicis*, effect of, on pectate gel, 9.
— *tumefaciens*, control, 319.
— —, effect of antibiotics from basidiomycetes on, 583; of aureomycin on, 175; of dyes on, 106; of tomato juice on, 481; of, on pectate gel, 9.
— — in New Zealand, 319.
— — in relation to cancer, 8, 105.
— —, inhibition of, by DL-tryptophane, 230.
— —, loss of activity by, 595.
— — on almond in U.S.A., 230.
— — on apple, transmission of, to aster and *Kalanchoe*, 423.
— — on beet, 230.
— — on cherry in U.S.A., 69.
— — on *Chrysanthemum*, *Dahlia*, and *Datura tatula*, factors affecting, 106.
— — on *Kalanchoe*, 321, 423.
— — on *Opuntia monacantha*, 481.
— — on peach in U.S.A., 230; control, 230, 480; transmission of, to aster and *Kalanchoe*, 423.
— — on *Pelargonium* in England, 386; effect of penitalin on, 175.
— — on poplar, factors affecting, 106.
— — on rose in S. Africa, 552.
— — on *Scorzonera*, 544, 596.
— — on sunflower, 321, 376.
— — on *Tagetes patula*, control, 322, 481; effect of antibiotics and chemicals on, 595.
— — on tobacco, 423; effect of tomato juice on growth of, 481.
— — on tomato, 106, 230; control, 175, 322; metabolism of, 276.
— — on *Vaccinium* in Canada, 424; U.S.A., 423; (?) transmission of, to aster, 423.
— — on *Vinca major*, factors affecting, 175.
— — on vine in Austria, 419; physiology of, 543.
— — on walnut in U.S.A., 230.
— —, tumour formation by, 105, 423.
— —, wilt-inducing polysaccharides from, 55.
Badhamia on clover in S. Australia, 344.
Balansia in N. and S. America, 402.
— on *Panicum* in Sierra Leone, 476.
Balcon's blight dust, use of, against *Xanthomonas phaseoli* on bean, 220.
Balladyna parva on coffee in the Ivory Coast, 282.
Baludon, effect of, on cereal rusts, 176.
Bamboo (*Arundinaria*, *Bambusa*, *Phyllostachys*), *Fusarium* on, in Java, 298.
—, *Kweilingia bambusae* on, in China, 401.
—, *Marasmius graminum* var. *equicrinis* on, in Trinidad, 300.
Banana (*Musa* spp.), *Bacillus subtilis* on, in India, 390.
—, *Ceratostomella paradoxa* on, in U.S.A., intercepted from Central America, 247.
—, *Cordana musae* on, in Peru, 208.
— diseases in Ceylon, 131.
—, *Fusarium* on, in Java, 298.
—, — *oxysporum* var. *cubense* on, in Ceylon, 132.
— mosaic virus in the Philippines, 119.
—, *Penicillium cyclopium* var. *album* on, 208.

Barberry (*Berberis* and *Mahonia*), *Cumminsiella sanguinea* on, in Yugoslavia, 594.
— eradication in Europe against *Puccinia graminis*, 234.
—, *Puccinia graminis* on, in Canada, 486.
Barley (*Hordeum*), *Alternaria tenuis* on, in Canada, 596.
—, *Aplanobacter hordei* on, in Japan, 180.
—, *Cercosporella herpotrichoides* on, control, 429.
—, endotrophic fungi in roots of, 623.
—, *Erysiphe graminis* on, in Denmark, 109; Germany, 378; Mexico, 372; U.S.A., 60, 279; breeding against, 324, 378; control, 248; physiologic races of, 324; varietal reaction to, 324, 372, 378.
—, *Fusarium* on, in Canada, 597.
—, *Gibberella zeae* on, in Northern Ireland, 593.
—, *Helminthosporium gramineum* on, in Mexico, 372; Sweden, 108; U.S.A., 178.
—, — *sativum* on, in Canada, 596; breeding against, 485.
—, — *teres* on, in Canada, 596.
— injury from factory gases, 400, 571.
—, lucerne dwarf virus can infect, 168.
—, nickel injury to, in Scotland, 631.
—, *Ophiobolus graminis* on, in England, 170; control, 429.
—, *Pleospora trichostoma* on, in England, 89; *Helminthosporium teres* imperfect state of, 89; synonymy of, 89.
—, potassium deficiency in, 601.
—, *Puccinia glumarum* on, in Denmark, 109.
—, — *graminis* on, 278; breeding against, 485; production of sori by, on albino seedlings, 599; varietal reaction to, 485.
—, — *hordei* on, in Denmark, 109; Mexico, 372; Portugal, 376; factors affecting, 176.
—, *Rhynchosporium secalis* on, in Austria, 279; U.S.A., 60; varietal reaction to, 549.
—, *Sclerospora* on, in U.S.A., 113.
—, *Ustilago hordei* on, in Canada, 392, 427; U.S.A., 392; control, 108, 392, 427, 545; factors affecting, 430; varietal reaction to, 233; viability of, 540.
—, — *nigra* on, in Canada and U.S.A., 392; control, 392, 545.
—, — *nuda* on, in Canada, 52, 427, 485, 600; Great Britain, 324; Holland, 59; U.S.A., 485; U.S.S.R., 113; breeding against, 324, 485; control, 52, 59, 113, 427, 485, 600; technique for forecasting, 485; varietal reaction to, 113, 324, 485, 600; viability of, 540.
— yellow dwarf virus on barley, oats, and wheat in U.S.A., 233; transmission of, by *Macrosiphum dirhodum*, *M. granarium*, *Rhopalosiphum maidis*, and *R. prunifoliae*, 233.
Basicop, use of, against *Chaetoseptoria wellmanii* on various plants, 47; against potato tuber rot, 52.
Basidiomycete on clover in Canada, 332.
— on lucerne, 52; in Canada, 332.
— on turf in U.S.A., 330.
— on wheat, 52.
Basidiomycetes, antagonism between, 583.
—, book on, 207.
—, clamp-connexions in some resupinate, 353.
— on Skokholm Island, 578.
—, spores of, in the air in Great Britain, 619.
Basidiophora butleri, *Sclerospora butleri* renamed, 436.
Bayer 2317W, composition of, 26.
Bean, broad (*Vicia faba*), bean yellow dot virus can infect, 266.
[Bean, broad], bean yellow mosaic virus on, 535; in U.S.A., 469; serology of, 218.
—, —, *Botrytis cinerea* on, in Kenya, 173; control, 249, 250.
—, —, — *fabae* on, 458; England, 445; control, 249, 250, 291, 445.
—, —, clover vein mosaic virus on, comparison of, with Wisconsin pea stunt virus, 98.
—, —, *Fusarium avenaceum* var. *fabae* on, 458.
—, —, mosaic virus, infection of *Phaseolus vulgaris* by, 474.
—, —, mottle virus in England, 469; host range of, 469.
—, —, nickel injury to, in Scotland, 631.
—, —, pea enation mosaic virus on, in Germany, 313.
—, —, — mosaic virus on, in Germany, 587.
—, —, — 'pimple pod' virus on, in Tasmania, 3.
—, —, *Pseudomonas marginalis* can infect, 165.
—, —, *Sclerotinia trifoliorum* and its var. *fabae* on, in England, 187.
—, —, *Uromyces fabae* on, 458; germination of uredospores in, 72.
—, —, Wisconsin pea stunt virus on, comparison of, with clover vein mosaic, 98.
Bean, French and Runner (*Phaseolus* spp.), *Alternaria* on, in U.S.A., 44.
—, —, *Ascochyta* on, in U.S.A., 365.
—, —, — *phaseolorum* on, in Peru, 208; Tanganyika Territory, 225; comparison of, with *A. abelmoschi*, 366.
—, —, bacteria on, control, 265.
—, —, black root virus on, in Switzerland, 49.
—, —, *Botrytis* on, in U.S.A., 416.
—, —, — *fabae* on, in Turkey, 588.
—, —, broad bean mottle virus can infect, 469.
—, —, chlorosis, lime-induced of, in U.S.A., 141.
—, —, *Colletotrichum lindemuthianum* on, in Germany, 584; Mexico, 372; Tanganyika Territory, 162; U.S.S.R., 516; control, 162, 365, 563, 584; transmission of, by seed, 372; varietal reaction to, 3, 266.
—, —, *Corticium sasakii* can infect, 83.
—, —, — *solani* on, in U.S.A., 416.
—, —, *Corynebacterium flaccumfaciens* on, in U.S.A., 3, 416.
—, —, cucumber mosaic virus on, 221.
—, —, curly top virus in U.S.A., 416.
—, —, damping-off of, in Holland, 479.
—, —, diseases of, seed-borne, control, 264.
—, —, *Erysiphe polygoni* on, breeding against, 218, 366; control, 248, 444, 529; technique for obtaining high incidence of, 529; varietal reaction to, 218, 266, 366.
—, —, factory gases causing injury to, 400, 571.
—, —, *Fusarium* on, 265; U.S.A., 44, 415.
—, —, *Isariopsis griseola* on, in New S. Wales and Queensland, 3; Sierra Leone, 476; Tanganyika Territory, 162; Victoria, 3; losses caused by, 3.
—, —, lucerne mosaic virus on, factors affecting, 267.
—, —, manganese deficiency in, in France, 95.
—, —, molybdenum deficiency in, 104.
—, —, mosaic virus, 163; in Germany, 535, 587; Tanganyika Territory, 162; U.S.A., 416; breeding against, 218, 366; serology of, 218; varietal reaction to, 218, 266, 366.
—, —, — — on clover in Germany, 587.
—, —, *Nematospora coryli* on, in Tanganyika Territory, 162.
—, —, 'New York 15 mosaic' virus on, in U.S.A., 218, 366.

[Bean, French and Runner], pea mottle and pea wilt viruses on, in U.S.A., factors affecting, 317, 474.
—, —, *Phytophthora* (?) *parasitica* on, in India, 99.
—, —, pod mottle virus on, in U.S.A., 218, 366.
—, —, *Pseudomonas marginalis* can infect, 165.
—, —, — *medicaginis* f. sp. *phaseolicola* on, in Mauritius, 538; Tanganyika Territory, 162; U.S.A., 219, 415, 416, 468; control, 220, 415, 468; technique for inoculating, 219; varietal reaction to, 3, 162, 219, 266.
—, —, *Pythium aphanidermatum* on, in U.S.A., 366, 416.
—, —, — *myriotylum* on, in U.S.A., 366.
—, —, — *ultimum* on, in Tanganyika Territory, 225; U.S.A., 366.
—, —, red node virus in U.S.A., 43; factors affecting, 267; longevity of, 44.
—, —, *Rhizoctonia* (?) *microsclerotia* on, 367.
—, —, *Sclerotinia sclerotiorum* on, in Tanganyika Territory, 162; U.S.A., 416; culture of, 516.
—, —, *Sclerotium delphinii* can infect, 554.
—, —, southern bean mosaic virus on, in U.S.A., 163, 369; U.S.S.R., 275; effect of fungi on, 369; electron microscope study of, 275; relation of, to black root virus, 163; resemblance between tobacco necrosis virus and, 218; serology of, 218, 318; varietal reaction to, 163.
—, —, streak virus, electron microscope study of, in U.S.S.R., 275.
—, —, *Synchytrium ajrekari* on, in India, 99.
—, —, tobacco mosaic virus on, action of water in inoculation with, 316; factors affecting, 317.
—, —, — necrosis virus on, action of water in inoculations with, 317; factors affecting, 317.
—, —, — ring spot virus on, in Germany, 535, 587; factors affecting, 267, 317.
—, —, — streak virus on, in U.S.A., 219; factors affecting, 219, 267; transmission of, by seed, 219.
—, —, tomato spotted wilt virus on, action of water in inoculations with, 317.
—, —, *Uromyces appendiculatus* on, in Portuguese W. Africa, 302; Puerto Rico, 362; Tanganyika Territory, 162; U.S.A., 416, 467; Western Australia, 467; control, 444; factors affecting, 317; germination of uredospores of, 72; physiologic races of, 467; varietal reaction to, 266, 467.
—, —, *Xanthomonas malvacearum* on, production of protopectinase by, 230.
—, —, — *phaseoli* on, in U.S.A., 3, 219, 416, 468; control, 220, 468; technique for inoculating, 219; varietal reaction to, 219, 266.
—, —, — — var. *fuscans* on, in U.S.A., 3; varietal reaction to, 266.
—, —, yellow dot virus on bean and lucerne in U.S.A., 266; host range of, 266; named *Marmor medicaginis* var. *phaseoli*, 266.
—, —, yellow mosaic virus on bean in Germany, 370, 535, 587; U.S.A., 416, 435, 469; host range of, 535; transmission of, by *Pergandeida craccae*, 370; varietal reaction to, 469.
—, —, — — — — on broad bean, 535; in U.S.A., 469; serology of, 218.
—, —, — — — — on *Gladiolus* in U.S.A., 385, 435.
—, —, — — — — on lupin, 535; in Germany, 587.
—, —, — — — — on *Melilotus alba* and *M. officinalis* in U.S.A., 469.
—, —, — — — — on soy-bean, 535; in U.S.A., 469.
—, —, zinc deficiency in, in U.S.A., 141.
Beauveria on *Brachyrinus, Diabrotica undecimpunctata, Hippodamia, Hypera nigrirostris, H. punctata,* and *Peranabrus scabricollis* in U.S.A., 116.
— on *Pyrausta nubilalis* in U.S.A., 552.
— on *Sitoria hispidula* in U.S.A., 116.
— *bassiana, Cephalosporium* and *Melanospora parasitica* parasitic on, in U.S.A., 116.
— — on *Hyalastinus obscurus* in U.S.A., 116.
— — on *Pyrausta nubilalis* in U.S.A., 552.
— —, *Stachylidium bassianum* synonym of, 301.
— (?) *globulifera* on *Pyrausta nubilalis* in U.S.A., 552.
Beech (*Fagus*) bark necrosis in Germany, 91, 534.
—, *Fomes fomentarius* on, in Germany, 91.
—, mycorrhiza of, in England, 396; distribution of phosphorus between host and fungus, in 396.
—, *Nectria coccinea* on, in Germany, 91.
—, *Polyporus adustus* on, in Germany, 91.
—, — *quercinus* on, in England, 305.
Beehives, fungi in, in Brazil, 488.
Bees, fungi on, in Brazil, 488.
—, *Pericystis apis* on, in England, 256.
Beet (*Beta vulgaris*), *Actinomyces scabies* on, in Germany, 536.
—, — *tumuli* on, in England, 256.
—, *Alternaria tenuis* on, in Germany, 585.
—, *Bacterium beticola* on, production of protopectinase by, 230.
—, — *tumefaciens* on, 230.
— 'black xylem vessel' disease in Holland, 161.
—, boron deficiency in, in Germany, 365; Great Britain, 415.
—, *Botrytis cinerea* on, in Great Britain, 415.
—, *Cercospora beticola* on, in Austria, 363; Belgium, 415; Germany, 364, 365; Switzerland, 364, 533; Turkey, 527; control, 363, 527; effect of, on yield, 364; factors affecting, 363, 364; losses caused by, 364; physiology of, 364; transmission of, by seed, 527; varietal reaction to, 363, 365.
—, *Clasterosporium putrefaciens* on, see *Sporodesmium putrefaciens* on.
— crinkle virus in Germany, 161; transmission of, by *Zosmenus quadratus*, 161.
—, cucumber mosaic virus on, 221.
— curly top virus, transmission of, by *Eutettix tenella*, 447.
—, damping-off of, in Switzerland, 533.
—, *Erwinia* can infect, 218.
—, ? Erysiphaceae, member of the, on, in Germany, 139.
—, factory gases causing injury to, in Germany, 571.
—, *Fusarium* on, 265.
—, — *culmorum* on, in Great Britain, 415.
—, *Helicobasidium purpureum* on, in Great Britain, 415.
—, lucerne witches' broom virus can infect, 125.
— mosaic virus on beet in England, 217, 467; beneficial effect of, on aphids, 98; control, 217; effect of, on carbohydrate content of leaves, 217; factors affecting, 217; transmission of, by aphids, 467.
—, nickel injury to, in Scotland, 631.
—, *Penicillium* on, in Great Britain, 414.
—, *Phoma* on, 265; in Denmark, 172.
—, — *betae* on, in Denmark, 224; Great Britain, 264, 415; control, 264, 266.
—, *Pythium* on, in Denmark, 172; control, 266.
—, — *debaryanum* and *P. irregulare* on, in Holland, 161.
—, *Rosellinia necatrix* on, in Great Britain, 415.
—, seed-borne diseases of, control, 264.

[Beet], *Sporodesmium putrefaciens* on, in Germany, 536.
—, *Uromyces betae* on, in Palestine, 147.
— vein-yellowing identical with yellow-net virus, 97.
— virus, a latent, in Great Britain, 157.
— yellow-net virus in (?) in England, 170; Germany, 97; vein-yellowing identical with, 97.
— yellows virus on beet in Austria, 415; Belgium, 159, 415; Denmark, 172; England, 169, 217, 467; Germany, 536, 588; Great Britain, 159; Yugoslavia, 363; control, 159, 169, 217, 535; effect of, on carbohydrate content of leaves, 217; factors affecting, 159, 217, 587; spread of, 159; transmission of, by aphids, 169; *Aphis fabae*, 587; *Hyperomyzus staphyleae*, 159; *Mysus persicae*, 159, 467, 587; varietal reaction to, 217.
— — — on mangold in Great Britain, 159.
Beetles, *Hirsutella stylophora* on larvae of, in U.S.A., 283; imperfect state of *Cordyceps stylophora*, 283.
— in herbaria, control, 619.
— transmitting *Xanthomonas albilineans*, 145.
Begonia, cucumber mosaic virus on, in England, 238.
—, *Oidium begoniae* on, in France, 329; Switzerland, 123; U.S.A., 434.
—, *Pythium* on, in Greece, 173.
—, *Xanthomonas begoniae* on, in India, 107.
— *gracilis*, factory gases causing injury to, 571.
Bembidion picipes, *Laboulbenia* on, in U.S.A., 283.
Bemisia gossypiperda, life-history of, 327.
— *tabaci* transmitting *Hibiscus esculentus* yellow vein mosaic virus, 6.
Bentonite, adsorption of antibiotics by, 255.
— clay, use of, with malachite green, 51.
Benzene hexachloride, inhibition of growth of *Rhizoctonia* by, 192.
— —, use of, against *Tilletia foetida* on wheat, 228.
Benzoic acid, use of, against *Xanthomonas phaseoli* on bean, 469.
Benzoquinone, fungicidal properties of, 340.
Berberis, see Barberry.
Bermuda grass, see *Cynodon dactylon*.
Beta-indoleacetic acid, effect of, on groundnut witches' broom, 165.
— -naphthol, effect of, on fungi, 412.
— —, use of, as a timber preservative, 310.
— naphthylthiourea, use of, against *Botrytis fabae* on broad bean, 445.
— -octyl-mercapto propionic acid and beta-oxo-diethyl ester of glutaric acid, use of, as fungicides, 27.
Betanal, use of, against *Cercospora beticola* on beet, 527.
Beta patellaris, use of, as test plant for tobacco white necrosis virus, 405.
— *vulgaris*, see Beet and Mangold.
Betel, see *Piper betle*.
Betoxin 61, use of, as a seed treatment for barley and oats, 108.
— F, use of, as seed treatment for barley, oats, and rye, 108.
Betula, see Birch.
BHC, use of, against earwigs, 437.
Bilberry, see *Vaccinium*.
Bioquin, use of, against *Exobasidium vexans* on tea, 355.
— 1, use of, against *Botryosphaeria ribis* on avocado pear, 132.
— copper 8, use of, against *Fusarium dianthi* on carnation, 227.
2, 3′, 4, 5′, 6-biphenylpentol dihydrate, use of, as a fungicide, 26.
Birch (*Betula*) die-back in Canada, 305; fungi A and B in relation to, 305.
—, *Mortierella alpina* on, in Canada, 305.
—, *Phomopsis* on, in Canada, 51, 52.
—, *Polyporus glomeratus* on, in Canada, 359.
—, *Poria obliqua* on, in Canada and Japan, 359; renamed *Fuscoporia obliqua*, 359.
Bisdimethylamino-fluoro-phosphine oxide, use of, against *Pseudococcus citri* and *P. njalensis* on cacao, 233.
Blackberry (*Rubus* spp.), *Armillaria mellea* and *Botrytis cinerea* on, in U.S.A., 24.
—, die-back of, in U.S.A., 23.
—, *Gymnoconia interstitialis* on, in U.S.A., 24; varietal reaction to, 24, 333.
—, raspberry white root rot can infect, 440.
—, *Rhabdospora ramealis* on, in Switzerland, 561.
—, *Rubus* stunt virus disease on, in Holland, 288.
Blakeslea, effect of *Penicillium* on, 136.
Blastomyces dermatitidis, antagonism of an actinomycete to, 255.
Blastophagus minor associated with *Ophiostoma canum*, 42.
Blastotrichum chowdhuryi on *Trichosanthes dioica* in India, 391.
Blephila hirsuta, *Puccinia menthae* on, in U.S.A., 351.
Blueberry, see *Vaccinium*.
Boletaceae, taxonomy of, 147.
Boliden salts, use of, as a timber preservative, 2, 584.
Bombax buonopozense, *Calonectria rigidiuscula* can infect, 232.
Borax, use of, against boron deficiency in cabbage, cauliflower, and spinach, 227; *Gladiolus*, 490; raspberry, 70; swede, 53; against citrus moulds, 430; *Erwinia carotovora* on swede, 53.
Borax-boric acid, use of, as a timber preservative, 310.
Bordeaux mixture, cost of, 425.
— —, effect of sulphur gases on, 419.
— — injury to potato, 572; walnut, 152.
— paste as a wound dressing, 20.
Boric acid, use of, against citrus moulds, 431; as a timber preservative, 2.
— oxide, use of, against boron deficiency in *Gladiolus*, 490.
Boron deficiency in beet in Germany, 365; Great Britain, 415; cabbage and cauliflower in U.S.A., 227; cherry in Switzerland, 223; *Chrysanthemum* in England, 223; citrus, 542; *Gladiolus* in U.S.A., 490; potato in India, 513; raspberry in New Zealand, 70; swede, 53; tomato in India, 522.
— excess in tomato in India, 522.
—, use of, against basidiomycete on clover and lucerne, 332.
Botany, text-book of theoretical, 196.
Botrilex, composition of, 26.
Botryodiplodia on cacao in New Guinea, 9.
— *theobromae*, differentiation of, from *Diplodia natalensis*, 237.
— — on cacao, 425; in Ecuador, 56; New Guinea, 9; W. Africa, 232.
— — on cotton in French Equatorial Africa, 115.
— — on *Hevea* rubber in Ceylon, 205; Indo-China, 206.
— — on onion in Sierra Leone, 476.
— *vitis* on vine in Portugal, 146.
Botryosphaeria marconii on hemp in Italy, 184.
— *ribis* on *Araucaria araucana* and *A. cunninghamii* in Mauritius, 538.

[*Botryosphaeria ribis*] on avocado pear in U.S.A., 132.
Botrytis dust, Boots', composition of, 26.
— in the air, 504.
— on bean in U.S.A., 416.
— on groundnut in S. Africa, 536.
— on hemp in Italy, 184.
— on lettuce in Italy, 530.
— on maize in Mexico, 373.
— on raspberry in U.S.A., 561.
— on timber in Sweden, 42.
— *allii* on onion in Canada, 529; control, 193, 341, 569; inhibition of, by albidin, 198; helixin, 620.
— *cinerea*, antagonism of actinomycetes to, 270; *Bacillus* to, 269; bacteria to, 270; *Bacterium coli* to, 270; *Cephalosporium* to, 270; *Chromobacterium* to, 269; *Cladosporium* to, 270; fungi to, 270; *Fusarium* to, 270, 271; *Myrothecium verrucaria* to, 448; *Phoma* to, 270; *Pseudomonas* to, 269.
— — in soil, control, 49.
— — on apple in Denmark, 66, 560; England, 570; Norway, 244; U.S.A., 190; control, 190, 560.
— — on apple juice in England, 570.
— — on beet in Great Britain, 415.
— — on blackberry in U.S.A., 24.
— — on broad bean in Kenya, 173; control, 249, 250.
— — on *Chrysanthemum* in Great Britain, 384.
— — on coffee in the Belgian Congo, 422.
— — on *Cryptomeria japonica* in Japan, 582.
— — on *Exochorda racemosa*, production of toxin by, 253.
— — on flax in Australia, 117; Great Britain, 593.
— — on *Freesia*, control, 385.
— — on larch, 582.
— — on lettuce, 623; control, 270.
— — on lily in N. America, 119.
— — on loganberry in U.S.A., 24.
— — on pea in Holland, 471.
— — on *Pelargonium hortorum* in England, 386.
— — on pine, 582; Chile, 354.
— — on potato, physiologic study on, 320.
— — on strawberry in U.S.A., 441.
— — on tomato (?) in the Channel Islands, 635; Northern Ireland, 593; control, 463, 593, 635.
— — on *Urena lobata* in Kenya, 16.
— — on vine in Austria, 419; Germany, 591; Switzerland, 316; U.S.A., 167; control, 316, 419, 591; effect of, on wine, 505; factors affecting, 167, 316; varietal reaction to, 316.
— — on wheat, 177.
— —, toxicity of fungicides to, 392; fungocin to, 395; oxyquinoline to, 49; thiram to, 193.
— —, use of, in testing fungicides, 26, 193.
— *elliptica* on lily in Italy, 185; N. America, 119.
— *fabae* on broad bean, 458; England, 445; Turkey, 588; control, 249, 250, 291, 445; losses caused by, 588.
— *gladiolorum* on *Gladiolus* in Denmark, 224; U.S.A., 119, 490; control, 119, 186, 490; losses caused by, 119; stomatal droplets in relation to, 284.
— *liliorum* on lily in U.S.A., 119.
— *paeoniae* on lily of the valley in England, 491.
— — on peony in England, 491; France, 606.
— *sylvatica* conidial state of *Hypoxylon mediterraneum*, 409.
— *tulipae* on tulip in Holland, 479.
— *tuliparum*, use of, in testing fungicides, 26.
Bougainvillea, *Phomopsis bougainvilleae* on, in Portugal, 301.
Bouisol injury to tea, 517.
—, use of, against *Peronospora matthiola*, 172.
Boysenberry (*Rubus ursinus* var. *loganobaccus*), *Gymnoconia interstitialis* on, resistance to, 24.
Brachypodium phoenicoides, *Selenophoma brachypodii* on, in France, 209.
Brachyrinus, *Beauveria* on, in U.S.A., 116.
Brassica, molybdenum deficiency in, 32.
—, *Phoma lingam* on, in Holland, 478.
—, *Plasmodiophora brassicae* on, in Northern Ireland, 216.
— *alba*, see Mustard.
— *campestris*, *Sclerotinia sclerotiorum* on, in Peru, 208.
— — var. *oleifera*, see Colza.
— *chinensis*, *Brassica nigra* virus on, transmission of, by *Myzus persicae* and *Rhopalosiphum pseudobrassicae*, 159.
— *juncea*, see Mustard, Chinese.
— *napobrassica*, see Swede.
— *napus* var. *oleifera*, see Rape.
— *nigra* virus on *Brassica chinensis* and mustard, transmission of, by *Myzus persicae* and *Rhopalosiphum pseudobrassicae*, 159.
— —, see also Mustard.
— *oleracea*, see Broccoli, Brussels sprouts, Cabbage, Cauliflower.
— — var. *acephala*, see Kale.
— — var. *caulo-rapa*, see Kohlrabi.
— *pekinensis*, see Cabbage, Chinese.
— *rapa*, see Turnip.
Brassican, composition of, 26.
Brassicol, composition of, 26.
—, use of, against *Botrytis cinerea* on *Freesia*, 385; *Sclerotium delphinii* on *Iris*, 479; *S. tuliparum* on tulip, 479; *Tilletia* (?) *brevifaciens* and *T. caries* on wheat, 547.
Brassocattleya and *Brassolaeliocattleya*, *Cattleya* virus can infect, 490.
Bremia lactucae on *Gaillardia aristata* in England, 256.
Brevicoryne brassicae, control, 2.
— — transmitting *Primula* mosaic virus, 18; radish mosaic virus, 43.
Brickwork, *Merulius molluscus* on, in Great Britain, 154.
Briza maxima, *Puccinia graminis* can infect, 330.
Broccoli, cauliflower mosaic virus on, in England, 2.
—, deterioration of, in marketing in England, 449.
—, *Erwinia carotovora* on, physiologic study on, 321.
—, molybdenum deficiency in, in England, 2.
3-bromoacenaphthene, effect of, on *Corynebacterium michiganense* and *Xanthomonas juglandis*, 106.
Bromus, *Pseudomonas coronafaciens* var. *atropurpurea* on, varietal reaction to, 65.
—, *Pyrenophora bromi* on, in U.S.A., 66.
— *asper*, *Puccinia symphyti-bromorum* f. *tuberosi-asperi* on, 146.
— *catharticus*, *Erysiphe graminis* on, in U.S.A., 284.
— —, lucerne dwarf virus can infect, 168.
— —, *Puccinia graminis*, *P. triticina*, and *Ustilago* on, in U.S.A., 284.
— *inermis*, diseases of, varietal reaction to, 124.
— —, *Pseudomonas coronafaciens* var. *atropurpurea* and *Pyrenophora bromi* on, factors affecting, 556.

[*Bromus*] *japonicus*, (?) wheat mosaic virus on, in U.S.A., 177.
— *laciniatus*, *Puccinia coronata* on, in Mexico, 372.
— *marginatus*, *Ustilago bullata* on, in U.S.A., 493; varietal reaction to, 124.
— *rigidus*, lucerne dwarf virus can infect, 168.
— *sterilis*, *Puccinia graminis* on, 278.
Bruchus pisorum, *Spicaria gracilis* on, in U.S.A., 116.
Brunolinum plantarium, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Brussels sprouts (*Brassica oleracea*), *Alternaria brassicicola* on, in Denmark, 224.
— —, *Fusarium conglutinans* can infect, 362.
— —, *Phoma lingam* on, in Holland, 478.
— —, *Pseudomonas maculicola* on, in Holland, 97.
Buchloe dactyloides, *Physarum* on, in S. Australia, 344.
Buckwheat (*Fagopyrum esculentum*), *Corticium solani* on, in Japan, 154.
—, potassium deficiency in, chlorine in relation to, 400.
—, *Septoria polygonicola* on, in India, 634.
Buddleia, cucumber mosaic virus on, in England, 238.
Building materials, moulds on, in England, 507.
Bulbosan, composition of, 26.
Bulbosit, use of, against *Cladosporium fulvum* on tomato, 479.
Bunias orientalis, cucumber mosaic virus on, in Sweden, 417.
Burgundy mixture, use of, against *Phytophthora infestans* on potato, 540; *Sphaerotheca morsuvae* on gooseberry, 559.

Cabbage (*Brassica oleracea*), *Alternaria brassicicola* on, in Denmark, 224; U.S.A., 96, 541; control, 444.
— black ring virus, 170; electron microscope studies of, 169, 276; factors affecting, 474.
— boron deficiency in, in U.S.A., 227.
—, *Corticium solani* on, in Yugoslavia, 216.
—, *Erysiphe* (?) *polygoni* on, in Jamaica, 8.
—, *Fusarium conglutinans* on, in U.S.A., 362; breeding against, 312; host range of, 362; varietal reaction to, 312, 541.
— mosaic virus on cabbage in U.S.A., 312, 466.
—, *Mycosphaerella brassicicola* on, in U.S.A., 96.
—, nickel injury to, in Scotland, 631.
—, *Olpidium brassicae* on, control, 564.
—, *Peronospora parasitica* on, in Mauritius, 538; U.S.A., 541; control, 541, 564.
—, *Phoma lingam* on, in Kenya, 414; U.S.A., 96; U.S.S.R., 157, 158; transmission of, by *Murgantia histrionica*, 157.
—, *Plasmodiophora brassicae* on, in India, 54; Northern Ireland, 216; U.S.A., 43, 226.
—, *Pseudomonas maculicola* on, in Holland, 97.
—, *Pythium aphanidermatum* on, in India, 526.
—, — *debaryanum* on, control, 564.
—, *Sclerotinia sclerotiorum* on, in U.S.A., 96.
—, *Sclerotium delphinii* can infect, 554.
—, turnip mosaic virus can infect, 363.
—, *Xanthomonas campestris* on, in U.S.A., 96; (?) in U.S.S.R., 157; factors affecting, 417; losses caused by, 157; technique for inoculating, 96; varietal reaction to, 96, 541.
Cabbage, Chinese (*Brassica pekinensis*), turnip mosaic virus can infect, 363.
Cacao (*Theobroma cacao*), *Armillaria mellea* on, in New Guinea, 9.
—, bibliography of, 9.
—, *Botryodiplodia* on, in New Guinea, 9.
[Cacao, *Botryodiplodia*] *theobromae* on, 425; Ecuador, 56; New Guinea, 9; W. Africa, 232.
—, *Calonectria rigidiuscula* on, 232.
— cherelle wilt in Costa Rica, 424, 425.
—, *Colletotrichum* on, in Ecuador, 56.
—, — *gloeosporioides* on, 425.
—, *Corticium* on, in New Guinea, 9.
—, — *salmonicolor* on, in New Guinea, 9.
— die-back in Ceylon, 9.
—, *Fomes lignosus*, *F. noxius*, and *Ganoderma pseudoferreum* on, in New Guinea, 9.
—, *Gibberella fujikuroi* on, 425.
—, *Gloeosporium* on, in New Guinea, 9.
—, *Marasmius* on, in New Guinea, 9.
—, — *perniciosus* on, in Brazil, 545; (?) Colombia, 108; Ecuador, 56, 107; breeding against, 424; control, 108, 545; factors affecting, 57; losses caused by, 545; physiology of, 107; selection of seeds resistant to, 424; varietal reaction to, 57, 424.
—, *Monilia roreri* on, in Ecuador, 56.
—, *Mycena micropapillata* and *M. theobromicola* on, in Trinidad, 300.
— 'okra leaf' disease in Ceylon, 9.
—, *Phytophthora palmivora* on, 538; (?) Ceylon, 9; Costa Rica, 374, 424, 425; Ecuador, 56; Gold Coast, 374, 426; (?) Java, 9; New Guinea, 9; W. Africa, 232; control, 232, 424, 425; factors affecting, 232, 426.
—, *Pythium* on, in Costa Rica, 374.
—, — (?) *debaryanum* on, in Costa Rica, 425.
—, *Sphaeronema* on, in Ecuador, 56.
—, *Sphaerostilbe repens* on, in New Guinea, 9.
—, *Stachybotrys subsimplex* on, in the Ivory Coast, 634.
— swollen shoot virus in the Gold Coast, 233, 425, 426; Nigeria, 426; W. Africa, 427; breeding against, 427; control, 425, 426; effect of, on yield, 426; electromicrographs of sap containing, 169; transmission of, by *Ferrisia virgata*, 425; *Pseudococcus citri*, 233, 425; *P. njalensis*, 233, 425, 427; varietal reaction to, 427.
—, tobacco necrosis virus can infect, 169.
—, *Ustulina zonata* on, in New Guinea, 9.
— virus 1A can infect *Erythropsis barteri*, *Sterculia rhinopetala*, and *S. tragacantha*, 232.
— — — on cacao in W. Africa, 231.
— virus diseases in Trinidad, 425; W. Africa, 231.
—, (?) zinc deficiency in, in Ceylon, 9.
Cadminate, use of, against *Sclerotinia homoeocarpa* on *Agrostis palustris*, 331; turf diseases in U.S.A., 331.
Cadmium dinicotine salicylate, use of, against *Botrytis fabae* on broad bean, 445.
— methyldithiocarbamate, use of, against *Tilletia caries*, 484.
— salts, effect of, on susceptibility of wheat to *Erysiphe graminis*, 484.
Cajanus cajan, see Pigeon Pea.
Cal 406, use of, as a seed treatment for cotton, 421.
Calcium deficiency in flax and linseed in Australia, 117.
— requirement of *Chaetomium globosum* and *C. indicum*, 75.
— -cadmium-copper-zinc chromate 531, use of, against *Sclerotinia homoeocarpa* on *Agrostis*, 341.
— chloride, use of, against *Xanthomonas phaseoli* on bean, 469.
— cyanamide, use of, against *Pseudomonas savastanoi* on olive, 443.

[Calcium] hydrate, effect of, on healing of freshly cut potato setts, 293.
Calendula, Cercospora calendulae on, in Mauritius, 538.
—, cucumber mosaic virus on, in Germany, 369; transmission of, by *Pharalis tanaceti*, 369.
—, *Erysiphe cichoracearum* on, control, 248.
— *arvensis, Septoria calendulae* on, in France, 209.
— *officinalis, Alternaria* on, in U.S.A., 239.
Callistephus chinensis, see Aster.
Caloclor, use of, against *Corticium solani* on *Agrostis palustris*, 284; *Sclerotinia homoeocarpa* on *Agrostis palustris*, 331.
Calonectria nivalis on *Alopecurus pratensis* in Finland, 556.
— — on cereals in Sweden, 108.
— — on *Dactylis glomerata, Festuca pratensis, F. rubra, Lolium multiflorum, L. perenne, Phleum pratense, Poa pratensis, P. serotina*, and *P. trivialis* in Finland, 556.
— — on rye in Austria, 550; Sweden, 103, 550.
— — on turf in Northern Ireland, 593; U.S.A., 330.
— — on wheat, 58; in Sweden, 103.
— *rigidiuscula*, host range of, 232.
— — on cacao, 232.
— — on *Hevea* rubber in Indo-China, 206.
— *theae* on tea in Ceylon, 210.
Camelina sativa, Plasmodiophora brassicae on, in Germany, 527.
Camellia, Gloeosporium and *Phomopsis* on, in U.S.A., 541.
—, *Phytophthora cinnamomi* on, in U.S.A., 541, 553; control, 541; losses caused by, 541.
—, virus causing colour breaking in, in U.S.A., 329.
— *sasanqua, Exobasidium camelliae* var. *gracilis* on, in U.S.A., 553.
— *sinensis*, see Tea.
Campanula, cucumber mosaic virus on, in England, 238.
— *persicifolia, Phytophthora porri* on, in England, 65.
Camphor (*Cinnamomum camphora*), *Armillaria mellea* on, in Tanganyika Territory, 225.
Candida albicans, inhibition of, by helixin, 620; rimocidin, 395.
Canna, lucerne dwarf virus can infect, 168.
—, *Puccinia cannae* on, geographical distribution of, 160.
— *indica*, cucumber mosaic virus on, in the Philippines, 119.
— — mosaic virus in the Philippines, 119; transmission of, by *Aphis maidis, Rhopalosiphum nymphaceae*, and *R. prunifoliae*, 119.
Cannabis sativa, see Hemp.
Cantaloupe (*Cucumis melo* var. *cantaloupina*), *Alternaria cucumerina* on, in U.S.A., 417.
—, cucumber mosaic virus on, in U.S.A., 166.
—, *Erysiphe cichoracearum* on, control, 248.
—, melon mosaic virus on, in U.S.A., 472.
— mosaic virus on cantaloupe in U.S.A., 273.
— — — on cucurbitaceae in U.S.A., 368; transmission of, by *Aphis gossypii*, 368.
Capitophorus transmitting strawberry virus 1, 440.
— *fragariae*, control, 440.
— — transmitting strawberry crinkle virus, 440; strawberry virus 3, 246; strawberry viruses, 68, 131, 390; strawberry yellow edge, 440; strawberry yellows virus, 499.
— *minor* transmitting strawberry virus, 288.
Capnodiaceae in Brazil, 33.
Capsella bursa-pastoris, Plasmodiophora brassicae on, in Germany, 527.
— —, turnip mosaic virus can infect, 363.
Capsicum annuum, see Chilli.
Carbamates, use of, against *Phytophthora infestans* on tomato, 226.
Carbide Bordeaux, use of, against coffee physiological leaf fall, 173.
Carbobenzoxylysine polypeptides, inhibition of tobacco mosaic virus by, 90.
Carbolineum, use of, against *Podosphaera leucotricha* on apple, 243.
Carbon dioxide, use of, against apple soft scald, 333; micro-organisms in apple juice, 570; strawberry deterioration during marketing, 450.
— disulphide, use of, against *Armillaria mellea* on blackberry, 24; *Corticium solani* on cabbage, cauliflower, and chilli, 216; *Sphacelotheca reiliana* on maize, 324; as a soil disinfectant, 471.
— tetrachloride, use of, as a seed treatment for bean, pea, and *Phaseolus lunatus*, 313.
Carborundum, use of, in detecting foliar deficiencies, 114.
Carboxide, use of, against *Corynebacterium sepedonicum*, 53.
Carduus broteroi, (?) lettuce mosaic virus can infect, 368.
Carex appropinquata and *C. paniculata, Puccinia opizii* on, in England, 589.
Cargilineum mixture, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Carica papaya, see Papaw.
Carnation (*Dianthus caryophyllus*), *Alternaria dianthi* on, varietal reaction to, 553.
—, — *dianthicola* on, in U.S.A., 239.
—, *Centrospora acerina* can infect, 269.
—, *Corticium solani* on, control, 227.
—, *Didymellina dianthi* on, in India, 634.
—, *Fusarium dianthi* on, breeding against, 227; varietal reaction to, 227, 553.
— mosaic virus in Canada, 491; Holland, 122, 123; natural protection against, 492; sap inhibitors against, 123; transmission of, by sap, 122; to aster, bean, *Dianthus barbatus*, and tobacco, 122.
—, *Pseudomonas caryophylli* on, in U.S.A., 227, 328.
—, *Uromyces caryophyllinus* on, in Palestine, 147.
—, — *dianthi* on, in U.S.A., 553.
Carneocephala flaviceps (?) transmitting lucerne dwarf virus, 48.
— *fulgida* transmitting lucerne dwarf virus, 168.
Carpinus betulus, see Hornbean.
Carrot (*Daucus carota*), *Alternaria dauci* on, in Israel, 563; U.S.A., 164; control, 563.
—, *Cercospora apii* var. *carotae* on, in Puerto Rico, 362.
—, — *carotae* on, in Jamaica, 8.
—, *Erwinia carotovora* on, 321.
—, lucerne dwarf virus can infect, 168.
—, — witches' broom virus can infect, 332.
—, *Phomopsis dauci* on, in Holland, 99, 163.
—, *Sclerotium delphinii* can infect, 554.
—, *Stemphylium radicinum* on, in Canada, 53; Denmark, 224; U.S.A., 164.
— virus on carrot in New S. Wales, 225.
—, *Xanthomonas carotae* on, physiologic study on, 321.
Carsane, use of, against *Phytophthora infestans* on potato, 80.
Carthamus glaucus, Puccinia carthami on, in Palestine, 146.

[*Carthamus*] *tinctorius*, see Safflower.
Carya pecan, see Pecan.
Cassava (*Manihot utilissima*) brown streak virus in E. Africa, 7, 421.
— mosaic virus in E. Africa, 7, 421.
—, witches' broom virus in Brazil, 419.
—, *Xanthomonas manihoti* on, in Brazil, 419, 589.
Cassia, Ravenelia wiehei on, in Nyasaland, 402.
— *siamea, Phaeolus manihotis* on, in the Gold Coast, 311.
— *tora, Xanthomonas cassiae* on, in India, 86.
Castanea, see Chestnut.
Castanopsis sempervirens, Chalara quercina can infect, 357.
Castor, see *Ricinus communis*.
Casuarina, Armillaria mellea on, in Tanganyika Territory, 225.
— *equisetifolia, Armillaria mellea, Phytophthora cambivora, Pseudomonas solanacearum*, and *Trichosporium vesiculosum* on, in Mauritius, 537.
— —, virus disease of, in the American Tropics, 262.
Catalpa, diseases of, 153.
Cattleya, Bacterium cattleyae and *Erwinia carotovora* on, in U.S.A., 186.
—, *Stachylidium bicolor* on, in U.S.A., intercepted from England, 301.
—, virus complex causing mottle, in U.S.A., electron-microscope study of, 434.
—, viruses causing flower breaking of, in U.S.A., 490.
Cauliflower (*Brassica oleracea*), *Alternaria brassicicola* on, in Denmark, 224; U.S.A., 541.
— blindness in Holland, 96.
—, boron deficiency in, in U.S.A., 227.
—, *Corticium solani* on, in Yugoslavia, 216.
—, *Matthiola incana* mosaic virus on, in Germany, 370; transmission of, by *Macrosiphum onobrychis*, 370.
—, molybdenum deficiency in, in England, 2, 417; Holland, 96; factors affecting, 96; nitrogen in relation to, 466.
—, — excess in, 466.
— mosaic virus, 170; electron-microscope studies of, 169, 276.
— — — on broccoli in England, 2.
—, *Peronospora parasitica* on, in U.S.A., 541.
—, *Plasmodiophora brassicae* on, control, 195.
—, *Pseudomas maculicola* on, in Holland, 97.
—, *Pythium aphanidermatum* on, in India, 526.
—, turnip mosaic virus can infect, 363.
—, *Xanthomonas campestris* on, in Greece, 256; technique for inoculating, 96.
Cavariella aegopodii transmitting radish mosaic virus, 43.
CB P–55, use of, against *Fusarium* on bean and pea, 44; strawberry black root rot, 561; *Verticillium albo-atrum* on strawberry, 561.
C.C. 531, use of, against *Sclerotinia homoeocarpa* on turf, 609.
CC 640, use of, against *Sphacelotheca sorghi* on sorghum, 181; *Tilletia caries* and *T. foetida*, 178.
CC 5400, use of, against *Sphacelotheca sorghi* on sorghum, 181.
Cedar (*Cedrus*), *Cytospora cedri* on, in Italy, 464.
—, *Lophodermium pinastri* on, in U.S.S.R., 40.
Cedrus deodara, see Deodar.
Ceiba pentandra, Calonectria rigidiuscula can infect, 232.
Celcure, use of, as a timber preservative, 2, 310.
Celeriac, see Celery.
Celery (*Apium graveolens*) calico virus on celery, 34; in U.S.A., 46.
— — — on tomato in U.S.A., 34.
—, *Centrospora acerina* on, in Denmark and U.S.A., 269.
—, *Cercospora apii* on, in U.S.A., 269, 362, 543; breeding against, 543; varietal reaction to, 362.
—, cucumber mosaic virus on, 46.
—, *Fusarium* on, 265; U.S.A., 269, 362; varietal reaction to, 362.
—, — *apii* on, in U.S.A., varietal reaction to, 4.
— mosaic virus on celery in Belgium, 269; transmission of, by *Myzus persicae* and sap, 269.
—, *Phoma apiicola* on, in U.S.A., 269; control, 444.
—, *Pythium* on, in U.S.A., 269.
—, *Rhizoctonia* on, in U.S.A., 269.
—, seed-borne diseases of, control, 264.
—, *Septoria apii* on, in Denmark, 224; England, 264; control, 247, 264, 502, 564; varietal reaction to, 362.
—, — *apii-graveolentis* on, in England, 264; control, 264, 444; varietal reaction to, 362.
—, tobacco ring spot virus on, 46.
—, western cucumber mosaic virus on, 46.
Cellulose, microbial decomposition of, book on, 394.
— acetate film, *Nodulisporium africanum* on, 208.
— fibres, decomposition of, by fungi, 569.
— sponge yarn, use of, in damp chambers, 447.
Cellu-san, use of, against *Trichoderma* (?) *viride* on timber, 361; as a timber preservative, 361.
Celtis zenkeri, Calonectria rigidiuscula can infect, 232.
Cement, fungi on, 199.
Cenangiaceae, taxonomy of, 460.
Cenangium ferruginosum on pine in Holland, culture of, 516.
Cenococcum geophilum, a method of inoculating with, 292.
Centrospora acerina can infect carnation, *Godetia hybrida*, and onion, 269.
— — on celery in Denmark and U.S.A., 269.
Cephalosporins P, effect of, on bacteria, 345.
Cephalosporium, antagonism of, to *Botrytis cinerea*, 270.
— in the air, 504.
— in the sea off Sardinia, production of antibiotics by, 345.
— in soil in England, 142.
— on *Beauveria bassiana* in U.S.A., 116.
— on guava in India, 390.
— on insects in U.S.A., 116.
— on maize, stored, in U.S.A., 602.
— on *Spicaria gracilis* in U.S.A., 116.
— on timber in Sweden, 42.
— *acremonium* on cement, 199.
— — on plaster walls, 198.
— *balanoides* on nematodes in Great Britain, 16.
— *gregatum* on soy-bean in Canada, 470; U.S.A., 268.
— *sacchari* on sugar-cane in India, 298; Mexico, 375.
Cephalothecin, effect of, on germination of *Piricularia oryzae*, 82.
Ceratocystis on *Colocasia antiquorum* in Japan, 294.
— *coerulescens* on timber in Italy, 464.
— *fimbriata*, effect of sorbose on, 137.
— — on coffee in Colombia, 551; Guatemala, 237.
— — on sweet potato in Japan, 294; U.S.A., 101.
— *piceae* on timber in Italy, 464; Sweden, 42.
— — on wood pulp, effect of bacterium culture filtrates on, 155.

Ceratospermopsis in Brazil, 33.
Ceratosporella and *C. bicornis*, taxonomy of, 147.
Ceratostomella perfect state of *Chalara quercina*, 358.
— *coerulea* on timber in Sweden, 42.
— *fimbriata* on *Hevea* rubber in Indonesia, 399.
— *paradoxa*, antagonism of a bacterium to, 375.
— — on banana in U.S.A., intercepted from Central America, 247.
— — on pineapple in Mexico, 375.
— — on sugar-cane in Formosa, 300; Mauritius, 537; Queensland, 352.
— *penicillata* on timber in Sweden, 42; *Ips typographus* associated with, 42.
— *pini* on timber (?) associated with *Ips acuminatus* in Sweden, 42; control, 94.
— *ulmi* on elm in Canada, 523; Germany, 536; Holland, 637; Sweden, 408; U.S.A., 228, 581; breeding against, 151; control, 408, 581; factors affecting, 637; legislation against, in Sweden, 408; U.S.A., 228; toxicity of rimocidin to, 395; transmission of, by *Scolytus*, 408; varietal reaction to, 151, 637.
Cercis canadensis, *Plasmopara cercidis* on, in U.S.A., 149.
Cercospora on *Cinnamomum tamala* in India, 86.
— *apii* on celery in U.S.A., 269, 362, 543; breeding against, 543; varietal reaction to, 362.
— — var. *carotae* on carrot in Puerto Rico, 362.
— *arachidicola* on groundnut, 274; in Brazil, 532; Indonesia, 101; Tanganyika Territory, 47; varietal reaction to, 421.
— *beticola* on beet in Austria, 363; Belgium, 415; Germany, 364, 365; Switzerland, 364, 533; Turkey, 527; control, 363, 527; effect of, on yield, 364; factors affecting, 363, 364; losses caused by, 364; physiology of, 364; transmission of, by seed, 527; varietal reaction to, 363, 365.
— *calendulae* on *Calendula* in Mauritius, 538.
— *canescens* on *Phaseolus angularis*, 458.
— *capsici*, antagonism between *Rhinotrichum griseo-roseum* and, 418.
— *carotae* on carrot in Jamaica, 8.
— *cladosporioides* on olive in Chile, 354; Italy, 500.
— *coffeicola* on coffee in Costa Rica, 374; El Salvador, 374.
— *cruenta* on *Phaseolus mungo* and *P. radiatus* in Assam, 370.
— *daizu* on soy-bean, 458.
— *festucae* on turf in U.S.A., 331.
— *fuligena* on tomato in Japan, 151.
— *kikuchii* on soy-bean, 458.
— *kopkei* on sugar-cane in Java, 207; Queensland, 352.
— *longipes* on sugar-cane in Mexico, 375.
— *oryzae* on rice, 458.
— *personata* on groundnut, 274; in Brazil, 532; El Salvador, 302; Indonesia, 101; control, 101, 565; varietal reaction to, 421.
— *sojina* on soy-bean in U.S.A., 416.
— *sorghi* on maize in French Equatorial Africa, 281.
— *vaginae* on sugar-cane in Mexico, 375.
— *zebrina* on lucerne in Jamaica, 8.
Cercosporella herpotrichoides on barley, control in England, 429.
— — on cereal straw in New Zealand, 319.
— — on rye in Denmark, 172; (?) in Sweden, 103.
— — on wheat in Denmark, 172; England, 170, 279, 429; Germany, 548; Greece, 256; control, 429; factors affecting, 279, 548.
— *poagena* on turf in U.S.A., 331.
Cereal root-rotting fungi, mixed infection of wheat by, 57.
— seed disinfectants, use of, not deleterious to health, 501.
— yellow dwarf virus in U.S.A., 233, 597; transmission of, by *Macrosiphum dirhodum*, *M. granarium*, *Rhopalosiphum maidis*, and *R. prunifoliae*, 233, 597; by *Toxoptera graminum*, 597.
Cerebella cynodontis on *Cynodon* in Portuguese W. Africa, 302.
Ceresan, effect of, on *Corticium solani* on larch, 153; on food, 501; *Fusarium* on *Cryptomeria japonica* and *Pythium* on *Paulownia tomentosa*, 153.
—, use of, against *Cercospora beticola* on beet, 527; *Colletotrichum lindemuthianum* on bean, 162; damping-off of hollyhock, 328; of papaw, 501; of vegetables, 584; *Fusarium oxysporum* f. *gladioli* on *Gladiolus*, 119; *Gibberella fujikuroi* on rice, 629; *Phoma apiicola*, 444; *Phytophthora* on citrus, 236; *Sclerotinia gladioli* on *Gladiolus*, 120; *S. sclerotiorum* on sunflower, 373; *Tilletia caries*, 533; *Xanthomonas malvacearum* on cotton, 605; as a seed treatment for barley, maize, and oats, 540; pea, 365; rice, 575; sunflower, 242.
— M, bioassay of, on oat kernels, 601.
— — injury to pea, 289, 365.
— —, use of, against *Helminthosporium gramineum* on barley, 178; *Puccinia carthami* on safflower, 459, 632; *Sphacelotheca sorghi* on sorghum, 181; *Tilletia caries* and *T. foetida*, 177, 178; *Ustilago avenae* and *U. kolleri* on oats, 178; as a seed treatment for cereals, 546; cotton, 422; pea, 289, 365.
—, new improved, use of, against fungi on wheat, 112; *Pseudomonas medicaginis* f. sp. *phaseolicola* and *Xanthomonas phaseoli* on bean, 220.
— SF, use of, as a seed treatment for pea, 365.
Cerotelium combreti on *Combretum* in Uganda, 402.
Certosan, use of, against bacterial rot of oil palm, 422.
Cetavlon, use of, against moulds on cork disks, 346.
Chaetocalathus in Jamaica, Trinidad, and Venezuela, 300.
Chaetomium, effect of rimocidin on, 395.
— in the air, 504.
— in soil in Germany, 296.
— on tomato in England, 222.
— *cochliodes* on tomato in England, 222.
— *globosum*, effect of calcium on, 75; sorbose on, 137.
— — on cellulose fibres, 569.
— — on cotton textiles, control, 30.
— — on electrical insulating tapes, 136.
— — on timber, 262.
— —, toxicity of 4-*sec*-butylphenol, 2, 4, 5-trichlorophenol, and *o*-phenylphenol to, 340.
— *indicum*, effect of calcium on, 75.
— — on cellulose fibres, 569.
Chaetopotius in Brazil, 33.
Chaetopsella, taxonomy of, 301.
Chaetopsis grisea and *C. wauchii*, 301.
Chaetoseptoria wellmanii on *Clitoria ternatea*, cowpea, *Mucuna aterrima*, *M. cinerea*, *M. deeringiana*, *Phaseolus angularis*, *P. aureus*, and soy-bean in Costa Rica, 47.
Chalara quercina can infect *Castanopsis sempervirens*, chestnut, and *Lithocarpus densiflorus*, 357.
— — on chestnut in U.S.A., 357.
— — on oak in U.S.A., 37, 306, 357, 408, 522;

Ceratostomella perfect state of, 358; genetics of, 408; legislation against, in U.S.A., 228; technique for diagnosing, 357; varietal reaction to, 37, 357, 522.
Chamaecyparis lawsoniana, *Phytophthora cinnamomi* and *P. lateralis* on, in U.S.A., 152.
— — var. *elwoodi*, *Phytophthora cinnamomi* on, in U.S.A., 553.
— *obtusa*, *Corticium solani* on, in Japan, 154.
— *pisifera*, *Poria obliqua* on, resistance to, 359.
Charcoal, brominated, activated, use of, against plant decay, 446.
Cheiranthus cheiri, see Wallflower.
Chelidonium majus, effect of, on soil fungi, 142.
Chemodyn, effect of, on cereal rusts, 176.
Cherry (*Prunus avium* and *P. cerasus*), *Armillaria mellea* on, varietal reaction to, 69.
—, *Bacterium tumefaciens* on, in U.S.A., 69.
—, (?) boron deficiency in Switzerland, 223.
—, *Clasterosporium carpophilum* on, in Yugoslavia, 353.
—, coal tar fumes causing injury to, in Italy, 29.
—, *Coccomyces hiemalis* on, in Denmark, 172; France, 209; Germany, 499; Switzerland, 498; U.S.A., 69, 129, 289, 392; control, 67, 129, 289, 392, 498; varietal reaction to, 69, 333, 498.
—, (?) crinkle virus in Switzerland, 224.
—, *Cylindrocladium* on, in Great Britain, 211.
— 'Eckelrade' virus disease in Holland, 128, 560; rasp leaf in relation to, 128.
—, little cherry virus on, in Canada, 54.
— — — — on *Prunus emarginata* var. *mellis* in Canada, 54.
—, magnesium deficiency in, in Norway, 559.
—, (?) manganese deficiency in, in Switzerland, 223.
— mosaic virus in Yugoslavia, 335.
— mottle leaf virus on plum in Yugoslavia, 594.
—, — virus in England, 171.
— necrotic ring spot virus in U.S.A., 21; control, 22; similarity between symptoms of peach ring spot virus and, 129; transmission of, 21.
—, peach ring spot virus on, in U.S.A., 129.
—, — X-virus on, varietal reaction to, 69.
—, 'Pfeffinger' virus disease in Germany, 128; Switzerland, 498; control, 245.
—, *Phytophthora* on, 69.
—, plum dwarf virus on, 50.
—, — mosaic virus can infect, 336.
—, — necrotic ring spot virus on, 50.
—, *Podosphaera* (?) *oxyacanthae* on, control in U.S.A., 129.
—, *Pseudomonas mors-prunorum* on, in England, 171.
—, — *syringae* on, 69.
—, *Puccinia cerasi* on, in Switzerland, 223.
—, — *pruni-spinosae* on, geographical distribution of, 160.
— rasp leaf virus in England, 171, 558; (?) in Switzerland, 224; U.S.A., 105; in relation to 'Eckelrade' virus disease, 128.
—, raspberry white root rot can infect, 440.
— ring spot virus in England, 558; U.S.A., 497; geographical distribution of, 498.
— rosette virus in England, 171, 558.
— rotting in Belgium, 614.
— rusty mottle virus in England, 171, 558; varietal reaction to, 69.
—, *Schizophyllum commune* on, in Greece, 256.
—, *Sclerotinia laxa* on, in U.S.A., 289.
—, *Septoria cerasi* on, in Portugal, 301.
— tatter leaf virus in England, 171, 558.
— vein-clearing virus in England, 171.
— (?) virus disease in Switzerland, 223.
[Cherry (?) virus] diseases of, in Switzerland, 560; Yugoslavia, 613; technique for detecting, 127.
— western X-disease virus on cherry, transmission of, by *Colladonus geminatus* and *Myzus cerasi*, 22; to peach, 22.
— — X-little cherry virus in U.S.A., 22.
— yellows virus on cherry, 50; U.S.A., 337; technique for diagnosing, 421.
— — — on *Prunus mahaleb* in U.S.A., 336; transmission of, 336.
—, zinc deficiency in, in Holland, 494; (?) Switzerland, 223; varietal reaction to, 68.
Cheshunt compound, use of, against *Phytophthora cryptogea* on tomato, 522.
Chestnut (*Castanea*), *Chalara quercina* on, in U.S.A., 357.
—, *Cryptodiaporthe castanea* on, in France, 39.
— die-back in France, 406.
—, *Endothia parasitica* on, 39; Italy, 358, 407, 408, 463, 464; Spain, Switzerland, and U.S.A., 463; Yugoslavia, 358, 463; control, 261, 358, 438; culture of, 358, 406; legislation against, in Yugoslavia, 638; study on, 438; varietal reaction to, 463.
—, (?) *Microsphaera alphitoides* on, in Switzerland, 148.
—, *Mycosphaerella maculiformis* on, in France, 39.
—, *Phytophthora cambivora* on, in Corsica, 39; France, 39, 406; Spain, 40.
—, — *cinnamomi* on, 152; in Corsica, 39; France, 39, 406; Spain, 40.
— 'rust' disease in France, 39.
Chick pea, see *Cicer arietinum*.
Chicory (*Cichorium intybus*), *Ascochyta cichorii* on, in Greece, 256.
—, (?) *Pseudomonas marginalis* on, in U.S.A., intercepted from Belgium, 164; host range of, 164.
—, *Puccinia cichorii* on, in New S. Wales, 225.
—, *Ramularia lampsanae* on, in Greece, 7.
—, rhizophere of, fungi in, 142.
—, *Verticillium dahliae* on, in Belgium, 101.
Chilli (*Capsicum annuum*), *Bacillus polymyxa* on, in Israel, 362.
—, *Colletotrichum multisetorum* on, in the Black Sea region, 165.
—, *Corticium solani* on, in Yugoslavia, 216.
—, cucumber mosaic virus on, 166.
—, — green-mottle mosaic virus inhibited by extracts of, 531.
—, *Erwinia* can infect, 218.
—, *Fusarium semitectum* var. *majus* on, in the Ivory Coast, 255.
—, (?) — *vasinfectum* on, in Argentina, 343.
—, *Leveillula taurica* on, in Israel, 361; control, 563.
—, lupin virus disease can infect, 241.
— mosaic virus in Brazil, 418; transmission of, by aphids, *Macrosiphum solanifolii*, and *Myzus persicae*, 419.
—, *Phytophthora cactorum* on, in El Salvador, 302.
—, — *capsici* on, in U.S.A., 274.
—, potato virus X can infect, 203, 452.
—, (?) potato virus Y on, in Brazil, 418.
—, *Sclerotinia sclerotiorum* toxic to, 30.
—, tobacco etch virus on, 520.
—, — mosaic virus on, in U.S.A., breeding against, 418.
Chinosol, see Quinosol.
Chloramphenicol, inactivation of, in soil, 344.
—, inhibition of *Pseudomonas glycinea* and *Xanthomonas beticola* by, 480.

[Chloramphenicol], production of, by *Streptomyces venezuelae*, 448.
—, properties of, 345, 621.
Chlordane, effect of, on soil fungi, 193.
Chlorine injury to plants, 571.
— ions, effect of, on plants, 400.
9,9-chloro-9,10-diphenyl acridan hydrochloride, use of, as a fungicide, 27.
4-chloro-3, 5-dimethylphenoxyethanol, effect of, on *Fusarium bulbigenum* var. *lycopersici*, 393; on tomato, 393.
Chlorogenic acid in relation to resistance of potato to *Actinomyces scabies*, 454.
Chloromycetin, see Chloramphenicol.
Chlorophenol red, effect of, on *Bacterium tumefaciens*, 106.
4-chloro-2-phenoxyacetic acid, use of, as a fungicide, 26.
4-chlorophenylthiourea, use of, against *Botrytis fabae* on broad bean, 445.
Chloropicrin, use of, against fungi on wheat, 112; *Phytophthora* on *Cinchona ledgeriana*, 207; *Sphacelotheca reiliana* on maize, 324; as a soil disinfectant, 35.
Chlorosalicylic acid, use of, against *Tilletia caries*, 484.
Chlorosis of plants, 624.
— of sorghum, iron-manganese ratios in relation to, 281.
—, lime-induced, 68, 297.
—, —, of bean, citrus, groundnut, orchard fruits, sorghum, and Sudan grass in U.S.A., 141.
Choanephora on *Dahlia* in U.S.A., 554.
— *cucurbitarum*, effect of sorbose on, 137.
— *infundibulifera* on *Dahlia* in India, 554.
Chromium, acidic, use of, as a timber preservative, 156.
Chromobacterium, antagonism of, to *Botrytis cinerea*, 269.
Chrysanthemum, aster yellows virus on, in U.S.A., 284.
—, *Bacterium tumefaciens* on, factors affecting, 106.
—, boron deficiency in, in England, 223.
—, *Botrytis cinerea* and *Corynebacterium fascians* on, in Great Britain, 384.
—, cucumber mosaic virus on, in England, technique for detecting, 491.
—, *Erysiphe cichoracearum* on, control, 248.
—, manganese deficiency in, in England, 223.
— mosaic virus on *Chrysanthemum* in England, 239; U.S.A., 284.
— — — on cineraria, 284.
— — — on *Matricaria*, varietal reaction to, 284.
—, *Oidium chrysanthemi* on, in Great Britain, 384.
—, *Puccinia chrysanthemi* on, in Great Britain, 120, 384.
— Q virus in U.S.A., 120.
—, *Septoria chrysanthemella* on, in Great Britain, 384.
— stunt mottle virus on *Chrysanthemum* in New S. Wales, 225.
— — virus on *Chrysanthemum* in U.S.A., 120, 608.
—, tomato aspermy virus on, 284; in Great Britain, 384.
—, — spotted wilt virus on, in Great Britain, 384.
—, *Verticillium dahliae* on, in Great Britain, 384.
— *cinerariifolium*, *Ramularia bellunensis* on, in the Belgian Congo, 423.
— *indicum*, *Puccinia chrysanthemi* on, in Palestine, 146.
Chrysomyxa abietis on pine in Sweden, 147.
— *ledi* on spruce in Sweden, 147.
— *pyrolae* synonym of *C. pyrolatum*, 147.
— *pyrolatum* on spruce in Sweden, 147.
— *woronini* on spruce in Sweden, 147.
Cicadulina mbila transmitting maize streak virus, 486.
Cicer arietinum, *Ascochyta rabiei* on, in Algeria, 229.
— —, *Corynebacterium fascians* on, pathogenicity of, 229.
— —, *Uromyces ciceris-arietini* on, geographical distribution of, 160.
— — yellowing in India, 541.
Cichorium endivia, see Endive.
— *intybus*, see Chicory.
Cinchona, *Phytophthora cinnamomi* on, in India, 634.
— *ledgeriana*, *Phytophthora* on, in Puerto Rico, 207.
— — and *C. succirubra*, *Phytophthora cinnamomi* on, in India, 634.
Cineraria (*Senecio cruentis*), *Alternaria senecionis* on, in Italy, 186; U.S.A., 239.
—, chrysanthemum mosaic virus can infect, 284.
—, *Coleosporium senecionis* on, in Northern Ireland, 593.
—, *Sphaerotheca fusca* on, in Holland, 555; *Oidium cinerariae* imperfect state of, 555.
Cinnamomum camphora, see Camphor.
— *tamala*, *Cercospora* and *Pestalotia cinnamomi* on, in India, 86.
Cintractia leucoderma on *Rhynchospora cyperoides* in S. Africa, 460.
Circinella, (?) *Septonema* on, 136.
— *rigida* in soil in England, 208.
Circulin, production of, by *Bacillus circulans* and toxicity of, to plant pathogenic bacteria, 276.
Cissus antarctica, *Deuterophoma tracheiphila* on, 604.
Cistus albidus, *Septoria cisti* on, in France, 209.
Citron (*Citrus medica*), *Pseudomonas syringae* on, in Italy, 183.
Citronin, effect of, on *Ascochyta pisi*, 528.
Citrullus vulgaris, see Watermelon.
Citrus (including all *Citrus* hosts) blind pocket psorosis in N. Africa, 63.
—, boron deficiency in, 542.
— chlorosis, lime-induced, in U.S.A., 141.
— collapse in U.S.A., 432.
—, copper, iron, manganese, and zinc deficiency in, in India, 541.
— decay, control, 543.
—, *Deuterophoma tracheiphila* on, 604; N. Africa, 63.
—, *Diaporthe citri* on, control in U.S.A., 543.
— die-back, control in S. Africa, 537.
—, *Diplodia natalensis* on, control, 543; differentiation of, from *Botryodiplodia theobromae*, 237.
— diseases in U.S.A., 181.
— —, deficiency, technique for detecting, 114.
—, *Elsinoe fawcetti* on, in U.S.S.R., 515.
— exocortis in Argentina, 382.
—, *Fusarium* on, in U.S.A., 543.
—, — *lateritium* on, in India, 183.
—, *Gloeosporium pedemontanum* on, in Italy, 487.
—, *Glomerella cingulata* on, in Assam, 370.
— gummosis in U.S.A., 237.
— leaf drop in S. Australia, zinc oxide in relation to, 183.
— 'lepra explosiva' in Argentina, identical with citrus scaly bark, 114.
— leprosis in Argentina, 326.

[Citrus], lithium toxicity to, 114.
—, magnesium deficiency in, in Israel, 383.
—, moulds on, in Morocco, 430.
—, nutritional status of, tissue analysis as a criterion of, 237.
—, *Penicillium digitatum* and *P. italicum* on, in Algeria and Israel, 603; control, 431.
—, *Peyronellaea prunicola* on, in Italy, 487.
—, phosphorus deficiency in, in U.S.A., 62.
—, *Phytophthora* on, 381; in U.S.A., 236.
—, — *citrophthora* on, 380; in Argentina, 326, 343; Israel, 604; Mauritius, 538; control, 326, 563.
—, — *hibernalis* on, in Israel, 604; control, 563.
—, — *palmivora* on, in Argentina, 326, 343.
—, — *parasitica* on, in Argentina, 326, 343; El Salvador, 302; India, 183; Israel, 604; Venezuela, 380; control, 326, 563; factors affecting, 326, 604; geographical distribution of, 604.
—, — *syringae* on, in Greece, 256.
—, *Pseudomonas syringae* on, in French N. Africa, 63; Italy, 183; U.S.S.R., 622.
— psorosis virus on citrus in N. Africa, 432; U.S.S.R., 14; types A and B of, 14.
— — — on lemon in U.S.A., 432; transmission of, 432.
— quick decline in N. Africa, 63; U.S.A., 228, 432; legislation against, in U.S.A., 228; recent developments in study of, 62.
— root rot, control, in S. Africa, 537.
— scaly bark identical with citrus 'lepra explosiva', 114.
— — — psorosis in N. Africa, 63.
—, *Septobasidium pseudopedicellatum* on, in India, 182.
—, *Septoria* on, in Brazil. 551.
—, — *limonum* on, in Italy, 487.
— spreading decline in U.S.A., 542; *Tylenchulus semipenetrans* in relation to, 543.
— stem-pitting in Argentina, 182; identical with tristeza, 182.
— 'toasting', *Phyllocoptruta oleivorus* causing, in Argentina, 326.
— tristeza virus on citrus in Argentina, 182, 382; Brazil, 62, 432; control, 182; distribution of, 432; relationship between lime disease, grapefruit stem-pitting, and, 62; stem-pitting identical with, 182; varietal reaction to, 343; virus nature of, 182.
—, virus disease of, in Victoria, 281, 382.
— witches' broom in Brazil, 382.
—, *Xanthomonas citri* on, in Fiji, 551; Mozambique, 183; elimination of, from Mozambique, 183.
— xyloporosis in Argentina, 181; U.S.A., 282.
— *aurantiifolia*, see Lime.
— *aurantium* and *C. bigaradia*, see Orange.
— *decumana* and *C. grandis*, see Grapefruit.
— *limonia*, see Lemon.
— *maxima*, see Shaddock.
— *medica*, see Citron.
— *nobilis*, see Orange.
— *paradisi*, see Grapefruit.
— *poonensis*, see Orange.
— *sinensis*, see Orange.
— *tankan*, see Orange.
— *trifoliata*, see *Poncirus trifoliata*.
Cladosporium, antagonism of, to *Botrytis cinerea*, 270.
— in the air, 504; in Great Britain, 619.
— in soil in Germany, 296.
— on cotton textiles in U.S.A., 606.
— on paint, 199.
[*Cladosporium*] on raspberry in U.S.A., 561.
— on rice in India, 505.
— on wheat, control in U.S.S.R., 130.
— on wood pulp in Finland, 155.
—, stimulating action of wood on culture of, 93.
— *cucumerinum* on cucumber in Holland, 479; U.S.A., 290; control, 479, 564.
— *effusum* on pecan control in U.S.A., 541.
— *fulvum* on tomato in the Channel Islands, 635; Holland, 151, 479; Northern Ireland, 593; breeding against, 227; control, 291, 479, 521, 593; physiologic races of, 151; varietal reaction to, 542.
— *herbarum*, 136.
— — in the air, 504.
— — in apple juice in England, 570.
— — on cement, 199.
— — on cork disks in New Zealand, 346.
— — on cotton textiles, 326.
— — on plaster walls, 198.
— — on vine in U.S.A., 167.
— — on wheat, 177.
— *manoutchrehil* on oak in Persia, 354.
Cladox, use of, against *Cladosporium fulvum* on tomato, 479.
Clasterosporium caricinum, *Hymenopodium sarcopodioides* synonym of, 301.
— *carpophilum* on apricot, factors affecting, 243.
— — on cherry in Yugoslavia, 353.
— — on peach in Peru, 208; Yugoslavia, 594.
— — on stone fruits, control, 127.
— *putrefaciens*, see *Sporodesmium putrefaciens*.
Clathrospora, taxonomy of, 354.
Clavacin, effect of, on *Ascochyta pisi*, 528; *Pythium debaryanum*, and *P. ultimum*, 449.
—, inactivation of, in soil, 344.
Claviceps purpurea, effect of ustilagic acid on, 448.
— — on *Lolium* in Italy, 379.
— — on rye in Italy, 379.
— — on wheat in France, effect of 2,4-D on, 323.
Clean crops fungicide, use of, against *Exobasidium vexans* on tea, 517.
Cleome spinosa, cucumber mosaic virus on, in U.S.A., 273.
Clerodendron phomoidis, *Xanthomonas clerodendri* on, in India, 544.
Clitocybe aurantiaca, antibiotic effect of, on *Bacterium coli* and *Staphylococcus aureus*, 569.
Clitoria ternatea, *Chaetoseptoria wellmanii* on, in Costa Rica, 47.
Clove (*Eugenia aromatica*) sudden death in Zanzibar, 8, 633.
— oil, use of, against *Bacterium tumefaciens* on peach and *Tagetes patula*, 481.
Clover (*Trifolium*), *Badhamia* on, in S. Australia, 344.
—, Basidiomycete on, in Canada, 332.
—, bean mosaic virus on, in Germany, 587.
—, — yellow dot virus can infect, 266.
— 'black patch' disease in U.S.A., 18, 286.
—, broad bean mottle virus can infect, 469.
—, *Colletotrichum trifolii* on, in U.S.A., 387; varietal reaction to, 125, 387, 557.
—, *Corticium solani* on, in U.S.A., 422; resistance to, 19.
—, *Erysiphe polygoni* on, in U.S.A., 248, 386; control, 248; varietal reaction to, 386.
—, *Kabatiella caulivora* on, varietal reaction to, 125, 386.
—, lucerne dwarf virus can infect, 168.

[Clover], molybdenum deficiency in, in New S. Wales, 104; control, 104, 436.
—, — mosaic virus on, in New Zealand, 319.
—, nickel toxicity in, in Scotland, 631.
—, pea enation mosaic on, in Germany, 312, 313.
—, — mosaic virus on, in Germany, 587; New Zealand, 319.
—, — 'pimple pod' virus of, in Tasmania, 3.
—, *Pseudopeziza trifolii* on, in Holland, 516.
—, *Pythium arrhenomanes*, *P. debaryanum*, *P. irregulare*, *P. paroecandrum*, *P. splendens*, and *P. ultimum* on, 386.
—, *Rhizoctonia* (?) *microsclerotia* on, 367.
—, *Rhizophagus* on, 255.
—, *Sclerotinia trifoliorum* on, in Denmark, 172; England, 187, 241; Germany, 286; Holland, 476; Sweden, 125, 286; U.S.A., 18; ascospore discharge in, 241; control, 242, 286; factors affecting, 18, 125, 241; study on, 241; varietal reaction to, 125, 286.
—, — — var. *fabae* can infect, 241.
—, *Sclerotium rolfsii* on, in U.S.A., 332, 422.
—, *Sphaerulina trifolii* on, in Holland, 476.
—, *Thielaviopsis basicola* on, in U.S.S.R., 187.
—, *Uromyces trifolii* on, in India, 387, 539; Spanish Morocco, 577; factors affecting, 539.
—, — *trifolii-repentis* on, in Palestine, 147.
— vein mosaic virus in U.S.A. compared with Wisconsin pea stunt virus, 98; host range of, 98.
—, *Volutella* on, in U.S.A., 332.
—, Wisconsin pea stunt virus on, in U.S.A., compared with clover vein mosaic, 98.
Clytostoma callistegioides, *Prospodium oblectum* on, in Argentina, Brazil, and Uruguay, 402.
Coal tar, use of, as a timber preservative, 310.
— — creosote, use of, as a timber preservative, 2, 309, 310, 311.
— — fumes injury to plants in Italy, 28.
— — oil, use of, as a timber preservative, 94, 309, 310.
Cobalt in the nutrition of animals and plants, 576.
— dinicotine salicylate, use of, against *Botrytis fabae* on broad bean, 445.
Coccids, see Scale insects.
Coccomyces hiemalis on cherry in Denmark, 172; France, 209; Germany, 499; Switzerland, 498; U.S.A., 69, 129, 289, 392; control, 67, 129, 289, 392, 498; varietal reaction to, 69, 333, 498.
Coccospora agricola in soil and on cotton textiles, 296.
Cochlearia armoracia, see Horse-radish.
Cochliobolus sativus perfect state of *Helminthosporium sativum*, 50, 179.
Cockroaches in herbaria, control, 619.
Coco-nut (*Cocos nucifera*) bronze leaf wilt in British Guiana, 383; Dominican Republic, Jamaica, Trinidad, and Venezuela, 14.
—, *Mucor* on, 114.
—, 'unknown disease' of, in the West Indies, 383.
Coffee (*Coffea*), *Auerswaldia excoriata* on, in the Ivory Coast, 282.
—, *Balladyna parva* on, in the Ivory Coast, 282.
—, *Botrytis cinerea* on, in the Belgian Congo, 422.
—, *Ceratocystis fimbriata* on, in Colombia, 551; Guatemala, 237.
—, *Cercospora coffeicola* on, in Costa Rica and El Salvador, 374.
— chlorosis in Kenya and Tanganyika Territory, 488.
—, *Corticium koleroga* on, in Costa Rica, 374; India, 15.
— 'crinkle' disease in Colombia, 551.
[Coffee], damping-off of, in the Belgian Congo, 422.
— deficiency diseases, technique for detecting, 114.
— die-back in India, 15.
—, *Entosordaria jacobifelicis* on, in the Ivory Coast, 282.
—, *Eutypa microspora*, *Eutypella coffeicola*, and *E. perplexans* on, in the Ivory Coast, 282.
—, *Fomes noxius* on, in India, 15.
—, *Fusarium* on, in India, 15.
—, — *oxysporum* on, in Costa Rica, 374.
—, *Gibberella xylarioides* on, in the Belgian Congo, 63; the Ivory Coast, 282; breeding against, 422; control, 64.
—, *Glomerella cingulata* on, in Costa Rica, 374; Kenya, 173.
—, *Gnomoniella quadriguttulata* on, in the Ivory Coast, 282.
—, *Hemileia vastatrix* on, in Ceylon, 605; Ethiopia, 33; India, 15; risk of introduction of, into America, 605.
—, *Hypomyces haematococcus* var. *breviconus* on, in the Ivory Coast, 282.
—, *Macrophomina phaseoli* and *Massaria immersa* on, in the Ivory Coast, 282.
—, *Mycena citricolor* on, in Colombia, 552; Costa Rica, 15, 184, 374; factors affecting, 15, 184.
—, *Myiocopron ramicolum* on, in the Ivory Coast, 282.
—, *Nectria coffeigena* on, in the Ivory Coast, 282.
—, — *dodgei* on, in El Salvador, 302.
—, *Omphalia flavida* on, see *Mycena citricolor* on.
—, *Ostropella verruculosa* and *Peroneutypa multistromata* on, in the Ivory Coast, 282.
—, *Phoma* on, in Kenya, 173.
— physiological leaf fall in Kenya, 173.
—, *Rosellinia* on, in Brazil, 383.
—, *Tryblidiella rufula* and *Vizella bingervilliana* on, in the Ivory Coast, 282.
Cola acuminata, see Kola.
— *cordifolia* and *C. togoensis*, *Calonectria rigidiuscula* can infect, 232.
Colchicine, use of, against *Bacterium tumefaciens* on *Tagetes patula* and tomato, 322.
Coleosporium barclayense on *Senecio alatus* and *S. rufinervis* in India, 411.
— —, *Peridermium brevius* renamed, 411.
— *senecionis* on cineraria in Northern Ireland, 593.
— — on *Senecio chrysanthemoides* and *S. graciliflorus* in India, 411.
Coleroa boukokoensis and *C. maydicola* on maize in French Equatorial Africa, 280.
Colladonus geminatus transmitting peach western X-disease virus, 22; peach yellow leaf roll virus, 614.
Colletotrichum on cacao in Ecuador, 56.
— on papaw in India, 55.
— *acaciae* on *Acacia cunninghami* in Spain, 577.
— *agaves* on sisal in Venezuela, 16.
— *atramentarium* on potato in Austria, 81, 574; Czechoslovakia, 81; Greece, 172; Holland, 477; Hungary, 81; Peru, 208; leaf scorch as a symptom of, 574.
— — on tomato in England, 222.
— *capsici* on cotton in India, 594.
— *circinans*, inhibition of, by helixin, 620.
— — on onion in Greece, 256.
— *coffeanum*, see *Glomerella cingulata*.
— *compactum* on *Albizzia lebbek* in India, 634.
— *curvatum* on *Crotalaria juncea* in Southern Rhodesia, 475.
— *derridis* on *Derris elliptica* in Java, 86.

[*Colletotrichum*] *fuscum* on *Digitalis* in U.S.A., 256.
— *gloeosporioides* on cacao, 425.
— *graminicola* on sorghum and Sudan grass in S. Africa, 536.
— — on turf in U.S.A., 331.
— *hibisci* on *Hibiscus cannabinus* in U.S.A., 489.
— *lagenarium* on cucumber in Germany, 584.
— — on watermelon in U.S.A., 166, 542; one physiologic race of, 542.
— *lindemuthianum* on bean in Germany, 584; Mexico, 372; Tanganyika Territory, 162; U.S.S.R., 516; control, 162, 365, 563, 584; transmission of, by seed, 372; varietal reaction to, 3, 266.
— — on Leguminosae in Puerto Rico, 362.
— — on *Phaseolus mungo* and *P. radiatus* in Assam, 370.
— *linicola* on flax in Australia, 117; antagonism of soil micro-organisms to, 258.
— — on linseed in Australia, 117.
— *multisetorum* on chilli in the Black Sea region, 165.
— *phaseolorum* on *Phaseolus angularis*, 458.
— *phomoides* on tomato in U.S.A., 303, 392, 521; breeding against, 581; control, 342, 392, 521; inhibition of, by helixin, 620; toxicity of carbon disulphide and nabam to, 194; varietal reaction to, 581.
— *pisi* on pea in Peru, 208.
— *spinaciae* on spinach in India, 416.
— *trifolii* on clover in U.S.A., 387; varietal reaction to, 125, 387, 557.
— *truncatum* on soy-bean in U.S.A., 267.
— *xanthii* on *Xanthium* in New S. Wales, 447.
— *zeae* on maize in French Equatorial Africa, 281.
Colloidal copper, see Bouisol.
— sulphur, see Sulphur, Colloidal.
Collybia in Jamaica, Trinidad, and Venezuela, 300.
— *butyracea*, antibiotic activity of, 569.
Colocasia, *Phytophthora colocasiae* on, in India, 54.
— *antiquorum*, *Ceratocystis* on, in Japan, 294.
Colsul 25 and 40, use of, against *Podosphaera leucotricha* and *Venturia inaequalis* on apple, 247.
Colza (*Brassica campestris* var. *oleifera*), *Alternaria brassicae* on, in Sweden, 103.
Combretum, *Cerotelium combreti* on, in Uganda, 402.
Commelina gigas, cucumber mosaic virus on, in U.S.A., 166.
Coniferae, *Corticium galactinum* on, in Canada, 51, 525; Czechoslovakia, Finland, Poland, and U.S.A., 525.
—, *Corticium odoratum* on, in Canada, Czechoslovakia, and Sweden, 525.
—, — *solani* on, in Argentina, 411.
—, damping-off of, in U.S.A., factors affecting, 639.
—, fluorine smoke injury to, 135.
—, *Fomes annosus* on, in England, 640.
—, — *subroseus* on, in N. America, 215.
—, *Fusarium arthrosporioides*, *F. avenaceum*, *F. bulbigenum* var. *blasticola*, *F. orthoceras*, *F. oxysporum*, *F. solani* var. *martii*, *F. vasinfectum*, and *Gibberella zeae* on, in Argentina, 411.
—, pathological resin canals in, 582.
—, *Polyporus borealis* on, in Europe, Japan, and N. America, 353.
—, *Pythium ultimum* on, in Argentina, 411.
—, *Trametes heteromorpha* on, in Japan, 353.
Coniophora fodinarum on mine timber in S. Africa, 460.
— *puteana*, culture of, 93.
— — on *Abies balsamea* in Canada, 413.
— — on timber, 262; in Finland, 155; Great Britain, 154; Sweden, 414, 526; control, 263, 465, 584.
— — on wood pulp in Finland, 155; effect of bacterium culture filtrates on, 155.
Coniosporium corticale renamed *Cryptostroma corticale*, 304.
Coniothyrium glomeratum synonym of *Peyronellaea glomerata*, 495.
— *maydis* on maize in French Equatorial Africa, 280.
— *zeae* on maize in French Equatorial Africa, 281.
Conopharyngia, *Calonectria rigidiuscula* can infect, 232.
Convallaria majalis, see Lily of the Valley.
Coposil, use of, against apple diseases, 437.
Copper in the nutrition of animals and plants, 576.
— A, use of, against *Phytophthora infestans* on potato, 373; tomato, 226, 372; *P. parasitica* on grapefruit, lemon, and orange, 380; *Xanthomonas juglandis* on walnut, 152.
— acetate, use of, against powdery mildews, 248.
— aceto-arsenite (?) injury to chestnut, 40.
—, ammoniacal, use of, against *Xanthomonas juglandis* on walnut, 152.
— arsenate, use of, as a timber preservative, 311.
—, Bayer, use of, against *Phomopsis dauci* on carrot, 163.
— carbonate, use of, against *Phytophthora cinnamomi* on chestnut, 40; *Plasmopara viticola* on vine, 532; *Sphacelotheca sorghi* on sorghum, 181, 594; *Tilletia caries*, 178, 598; *T. foetida*, 178.
— chloride, use of, against *Tilletia foetida*, 108; *Ustilago hordei* on barley, 108.
— chromate, use of, against *Ustilago hordei* on barley, 108; as a timber preservative, 311.
—, colloidal, use of, against *Oidium chrysanthemi* on *Chrysanthemum*, 384.
— compounds 1, 2, and 3, use of, against tea diseases in Japan, 258.
— cuprosulphite, use of, against *Venturia inaequalis*, 341.
— deficiency in citrus in India, 541; *Gladiolus* in U.S.A., 490; *Phleum pratense*, 188.
— dinicotine salicylate, use of, against *Botrytis fabae* on broad bean, 445.
— dust injury to rice, 575.
— fungicides, assay of, 565.
— 8-hydroxyquinoline, use of, as a textile preservative, 570.
— in soil, technique for determining, 32.
—, inactivation of, in fungicides, 342.
— -lime, use of, against *Gibberella fujikuroi* var. *subglutinans* on sugar-cane, 298; *Phytophthora infestans* on potato, 476; *Sphaceloma menthae* on peppermint, 351; *Venturia inaequalis*, 610; with debena, 444.
— — sprays, effect of, on yield and starch content of potatoes, 511.
—, metallic, use of, against *Peronospora destructor* on onion and shallot, 268.
— naphthenate injury to tea, 517.
— —, preparation of, 127.
— —, use of, against *Clasterosporium carpophilum* on stone fruits, 127; *Plasmopara viticola* on vine, 167; *Sclerotinia fructigena* and *S. laxa* on apricot, 127; *Uncinula necator* on

vine, 166; as a timber preservative, 2, 156, 311.
[Copper] nitrosalicylate, use of, against *Tilletia caries*, 484.
— oxide injury to guava, 391.
— —, use of, against *Cercospora arachidicola* and *C. personata* on groundnut, 101; *Exobasidium vexans* on tea, 210; *Merulius lacrymans* on timber, 262; *Phytophthora cinnamomi* on chestnut, 40; *P. infestans* on potato, 476; *Plasmopara viticola* on vine, 532; *Puccinia psidii* on guava, 391.
— —, yellow, use of, as a seed treatment for cotton, 422.
— oxychloride, use of, against *Cercospora arachidicola* and *C. personata* on groundnut, 101; *Cladosporium fulvum* on tomato, 521; damping-off of hollyhock, 328; *Exobasidium vexans* on tea, 210; *Oidium begoniae* on *Begonia*, 329; *Phytophthora cinnamomi* on chestnut, 40; *P. infestans* on potato, 81, 476; *Plasmopara viticola* on vine, 532; *Podosphaera leucotricha* on apple, 243; *Pseudopeziza ribis* on currant, 559; *Septoria phlogis* on *Phlox drummondii*, 478; *Tilletia foetida* on wheat, 108; *Venturia inaequalis*, 67, 190, 287, 477; *V. pirina*, 21, 477.
— — sulphate, use of, against *Phytophthora infestans* on potato, 373; *Pseudoperonospora humuli* on hops, 206.
— pentachlorophenate, use of, for preserving fibre insulating board, 396.
— -8-quinolinolate, use of, against fungi on electrical equipment, 29; mildews on paint, 136; on paint, varnishes, and lacquers, 396; *Phytophthora cinnamomi* on *Camellia*, 541.
— Sandoz, use of, against *Didymella applanata* on raspberry, 49; *Exobasidium vexans* on tea, 355; *Pseudopeziza ribis* on currant, 559.
—, Shell, use of, against *Phytophthora parasitica* on grapefruit, lemon, and orange, 380.
— suboxide, use of, against *Phytophthora infestans* on potato, 80.
— sulphate, toxicity of, to *Bacterium tumefaciens*, 595.
— —, use of, as a seed treatment for barley and oats, 427; as a timber preservative, 311.
— —, tribasic, use of, against *Phytophthora infestans* on tomato, 226, 521, 580; *Pseudomonas lacrymans* on cucumber, 273.
— -sulphur, use of, against *Plasmopara viticola* on vine, 102.
— thiocarbamate, use of, against *Plasmopara viticola* on vine, 591.
Coppesan, use of, against *Exobasidium vexans* on tea, 355.
Coprinus, Ozonium aurantiacum mycelial form of, 154.
— *picaceus*, antibiotic effect of, on *Bacterium coli* and *Staphylococcus aureus*, 569.
Coprosma baueri, lucerne dwarf virus can infect, 168.
Corchorus capsularis and *C. olitorius*, see Jute.
Cordana musae on banana in Peru, 208.
Cordyceps stylophora, Hirsutella stylophora imperfect state of, 283.
Coreopsis douglasii, Dahlia mosaic virus can infect, 121.
Cork disks, moulds on, in New Zealand, 346.
Cornus mas, Phyllactinia corylea on, in Yugoslavia, 594.
Corozate, use of, against tomato diseases, 303.
Corticium in S. Africa, 460.
— on cacao in New Guinea, 9.
[*Corticium*] on lettuce, 265.
— on maize in Mexico, 373.
— *bisporum* on apple in Norway, 244.
— *centrifugum*, 244.
— *fuciforme* on grass in Holland, 476.
— — on *Poa pratensis* in U.S.A., 228.
— — on turf in U.S.A., 330.
— *galactinum* on *Abies balsamea* in Canada, 51, 413.
— — on broad-leaved trees in Canada, Czechoslovakia, Finland, Poland, and U.S.A., 525.
— — on conifers in Canada, 51, 525; Czechoslovakia, Finland, Poland, and U.S.A., 525.
— — on pine in Canada, 52; geographical distribution of, 525.
— *invisum* on tea in Ceylon, 210.
— *koleroga* on coffee in Costa Rica, 374; India, 15.
— *odoratum* on broad-leaved trees and conifers in Canada, Czechoslovakia, and Sweden, 525.
— — on pine in Canada, Czechoslovakia, and Sweden, 525.
— *rolfsii* on sugar-cane in Mexico, 375.
— *salmonicolor* on *Acacia decurrens* in Mauritius, 538.
— — on apple in S. Africa, 460.
— — on cacao in New Guinea, 9.
— — on *Hevea* rubber in Indo-China, 206; Indonesia, 399; Malaya, 295; control, 206, 295.
— — on oak in S. Africa, 460.
— *sasakii* can infect bean, eggplant, and tomato, 83.
— — on rice in Venezuela, 83; control, 575.
— *solani*, antagonism of an actinomycete to, 255; of actinomycetes, bacteria, and fungi to, 271; *Myrothecium verrucaria* to, 448.
— — in soil in Germany, 296; U.S.A., 640; control, 265.
— — on *Abies sachalinensis* in Japan, 154.
— — on *Agrostis palustris* in U.S.A., 284.
— — on *Amorpha fruticosa* in Japan, 154.
— — on bean in U.S.A., 416.
— — on buckwheat in Japan, 154.
— — on cabbage in Yugoslavia, 216.
— — on carnation, control, 227.
— — on cauliflower in Yugoslavia, 216.
— — on *Chamaecyparis obtusa* in Japan, 154.
— — on chilli in Yugoslavia, 216.
— — on clover in U.S.A., 422; resistance to, 19.
— — on coniferae in Argentina, 411.
— — on cotton in Japan, 154; U.S.A., 64; association of, with *Frankliniella fusca*, 64.
— — on *Cryptomeria japonica* in Japan, 153.
— — on *Cyamopsis tetragonoloba* in India, 386.
— — on *Dactylis glomerata*, resistance to, 19.
— — on *Festuca elatior* var. *arundinacea* in U.S.A., 19, 422.
— — on *Hevea guianensis* var. *lutea* in Peru, 458.
— — on *Hevea* rubber in Peru, 294, 458; geographical distribution of, 295.
— — on *Hibiscus cannabinus* in Japan, 154.
— — on hollyhock in India, 328.
— — on hops in Canada, 633.
— — on larch in Japan, 153.
— — on *Lespedeza stipulacea* and *L. striata* in U.S.A., 19.
— — on lettuce in U.S.A., 5; control, 5, 271.
— — on *Lotus corniculatus* and *L. uliginosus* in U.S.A., 19.
— — on lucerne in U.S.A., 19.
— — on maize in Canada, 60.
— — on *Melilotus alba* and *M. officinalis* in Canada, 493.
— — on papaw in India, 501.

[*Corticium solani*] on pea, control, 265.
— — on pine in Argentina, 411; Canada, 412; Japan, 153.
— — on potato in Germany, 296; control, 454; varietal reaction to, 454, 510, 540.
— — on *Saponaria* in India, 609.
— — on soy-bean in U.S.A., 19.
— — on spruce in Japan, 154.
— — on strawberry in U.S.A., 562.
— — on tobacco, control, 249.
— — on turf in U.S.A., 330, 331.
— —, toxicity of debena to, 444; fungocin to, 395; ustilagic acid to, 448.
— —, use of, in testing fungicides, 26.
— *vellereum* on *Acer* in Canada, 51.
Corylus americana × *C. avellana*, *Labrella coryli* on, in U.S.A., 214.
— *avellana*, *Sclerotinia fructigena* and *S. laxa* on, in Italy, 438.
Corynebacterium, inhibition of, by aureomycin, 54, 480; neomycin, 480; terramycin, 54, 480.
— *fascians*, action of, on pectate gel, 9.
— —, antagonism of *Bacillus mesentericus* to, 229.
— — on *Chrysanthemum* in Great Britain, 384.
— — on *Cicer arietinum*, pathogenicity of, 229.
— — on *Gladiolus* in Canada, 54.
— — on *Pelargonium hortorum* in England, 386.
— — on sweet pea, pathogenicity of, 229.
— — on various hosts, study on, 56.
— *flaccumfaciens*, action of, on pectate gel, 9.
— — on bean in U.S.A., 3, 416.
— *insidiosum* on lucerne in Canada, 50; U.S.A., 387; varietal reaction to, 387.
— — on *Medicago falcata* in Alaska, 436.
— *michiganense*, action of, on pectate gel, 9.
— — on tomato, 230; India, 36; New Zealand, 319; factors affecting, 107.
— —, variation induced in, 106.
— *poinsettiae*, effect of antibiotics on, 480.
— *sepedonicum*, effect of antibiotics on, 480.
— — on potato in Canada, 50, 53, 512; U.S.A., 628; control, 53, 512; nutrition of, 512; seed certification against, in Canada, 103; varietal reaction to, 50, 53, 628.
— — on tomato, factors affecting, 417.
— *tritici*, action of, on pectate gel, 9.
Corynelia brasiliensis, *C. jamaicensis*, *C. oreophila*, and *C. portoricensis* on *Podocarpus*, 148.
Corynespora cassiicola on cucumber in Germany, 584; Holland, 479.
— — on melon in Germany, 584.
— — on vegetable marrow in Germany, 584.
Coryneum foliicola on apple in Italy, 495.
— *pirinum* on pear in Portugal, 146.
Cosmos bipinnatus, *Erwinia cosmovora* on, in India, 555.
— —, *Microascus trigonosporus* on, in Denmark, 224.
Cotinus, *Verticillium dahliae* on, in Holland, 478.
Cotton (*Gossypium*), *Ascochyta gossypii* on, in U.S.A., 282, (?) 356.
—, *Botryodiplodia theobromae* on, in French Equatorial Africa, 115.
—, *Colletotrichum capsici* on, in India, 594.
—, *Corticium solani* on, in Japan, 154; association of, with *Frankliniella fusca* in U.S.A., 64.
—, *Diplodia gossypina* on, in U.S.A., effect of acidity on, 326.
— diseases, breeding against, in Africa, 64; control in U.S.A., 421.
—, endotrophic fungi in roots of, in U.S.S.R., 623.
[Cotton], *Fusarium vasinfectum* on, in French Equatorial Africa, 115; India, 594; control, 238; varietal reaction to, 115, 594.
—, *Glomerella gossypii* on, in French Equatorial Africa, 115.
— leaf curl virus on cotton in the Anglo-Egyptian Sudan, 184, 327; French W. Africa, 115; India, 54; Nigeria, 327; breeding against, 184; control, 327; factors affecting, 327; transmission of, 327; by grafting, 541; varietal reaction to, 115, 184.
— — — — on *Sida carpinifolia* in Nyasaland, 184.
—, *Nematospora coryli* and *N. gossypii* on, in French Equatorial Africa, 115.
—, *Phytophthora cactorum* on, in El Salvador, 302.
—, *Pythium debaryanum* on, in India, 488.
—, *Ramularia* (?) *areola* on, in French Equatorial Africa, 115.
—, *Rhizoctonia microsclerotia* on, in El Salvador, 302.
—, *Sclerotium rolfsii* on, in El Salvador, 302.
—, *Thielaviopsis basicola* on, in U.S.A., 383.
—, *Trichoderma viride* stimulating, in Egypt, 238.
—, *Verticillium dahliae* on, in Mozambique, 114; S. Africa, 184; control, 115.
— virus diseases in the Anglo-Egyptian Sudan, 327.
—, *Xanthomonas malvacearum* on, in French Equatorial Africa, 115; Uganda, 173; U.S.A., 282; U.S.S.R., 621; Yugoslavia, 327, 605; breeding against, 174, 184, 422, 432; control, 115, 174, 605, 621; factors affecting, 173, 327; technique for inoculating, 327; varietal reaction, 115, 327, 433.
—, textile, *Actinomyces* on, in U.S.A., 606.
—, —, *Alternaria* on, 326; in U.S.A., 606.
—, —, *Aspergillus* on, in U.S.A., 606.
—, —, — *clavatus*, *A. fumigatus*, *A. glaucus*, and *A. nidulans* on, 506.
—, —, — *niger* on, 327; control, 30.
—, —, — *varians* on, 506.
—, —, bacteria on, 327, 394.
—, —, *Cladosporium* on, in U.S.A., 606.
—, —, — *herbarum* on, in U.S.A., 326.
—, —, *Coccospora agricola* on, 296.
—, —, deterioration of, in U.S.A., 506.
—, —, fungi on, 394; in India, 29; control, 29, 30.
—, —, *Fusarium* on, in U.S.A., 606.
—, —, *Gibberella fujikuroi* on, in U.S.A., 326.
—, —, *Glomerella gossypii* on, in U.S.A., 606.
—, —, *Humicola fusco-atra* and *H. grisea* on, 296.
—, —, *Monotospora lanuginosa* on, 296.
—, —, *Mucor flavus*, *M. parvisporus*, and *M. spinosus* on, 506.
—, —, *Penicillium*, *P. bulliardum*, *P. commune*, *P. nigricans*, and *P. ramigenum* on, 506.
—, —, *Rhizopus stolonifer* on, 506; in India, 30.
—, —, *Rhodotorula aurea* on, in U.S.A., 327.
—, —, *Scopulariopsis repens* and *Sporotrichum spicatum* on, 506.
Cottonwood (*Populus*), *Ganoderma applanatum*, *Pholiota destruens*, *Polyporus adustus*, and *P. delectans* on, in Canada, 51.
Cowpea (*Vigna unguiculata*), bean yellow dot virus can infect, 266.
—, beet and mangold virus can infect, 157.
—, *Chaetoseptoria wellmanii* on, in Costa Rica, 47.
—, *Macrophomina phaseoli* on, in U.S.A., 589.

[Cowpea], *Pythium aphanidermatum* on, in Venezuela, 33.
—, *Rhizoctonia* (?) *microsclerotia* can infect, 367.
—, tobacco necrosis virus on, 518.
—, *Uromyces vignae* on, in Sierra Leone, 476; germination of uredospores in, 72.
—, *Xanthomonas vignicola* on, in U.S.A., 45.
CR 305, use of, against *Coccomyces hiemalis* on cherry, 129.
CR 409, use of, as a systemic insecticide, 425.
Crag, use of, against *Phytophthora infestans* on tomato, 372.
— 341, use of, against *Botrytis cinerea* on apple, 190.
— 531 and 1025, use of, against *Sclerotinia homoeocarpa* on *Agrostis palustris*, 331.
— 541 C, use of, against *Venturia inaequalis*, 53.
— 658, use of, against *Botryosphaeria ribis* on avocado pear, 132; potato tuber rot, 53.
— C, use of, against *Venturia inaequalis*, 496.
Cranberry (*Vaccinium oxycoccus*), false blossom virus on, in U.S.A., 24; transmission of, by *Scleroracus vaccinii*, 24.
Crank-case oil, use of, as a timber preservative, 310.
Crataegus azarolus, Gymnosporangium clavariiforme on, in Palestine, 146.
Creosote, specifications and performance of, 157.
—, use of, against *Fomes annosus* on timber, 640; as a timber preservative, 2, 95, 156, 157, 309, 311.
— coal tar, use of, as a timber preservative, 309.
— oil, use of, as a timber preservative, 310.
— petroleum, use of, as a timber preservative, 309.
Cresatin vapour, use of, against moulds on optical instruments, 622.
Cresol oil, use of, as a timber preservative, 156.
Crinipellis perniciosus, Marasmius perniciosus (q.v.) renamed, 300.
Cronartium himalayense on pine and *Swertia* in India, 524.
— *ribicola* on pine in Canada, 51.
— — f. *indica* on currant and pine in India, 410; *Peridermium indicum* synonym of, 410.
Crotalaria, Fusarium udum var. *crotalariae* on, in India and U.S.A., 19.
— *anagyroides*, witches' broom virus on, in Java, 557; (?) identical with mosaic, 557.
— *juncea, Colletotrichum curvatum, Macrophomina phaseoli*, and *Thielaviopsis basicola* on, in Southern Rhodesia, 475.
— —, tomato big bud virus on, in New S. Wales, 225.
— —, witches' broom virus on, in Java, 557; (?) identical with mosaic, 557.
— *retusa, Oidium* on, in India, 492.
— *spectabilis*, bean yellow dot virus can infect, 266.
— *striata* and *C. usaramoensis*, witches' broom virus on, in Java, 557; (?) identical with mosaic, 557.
— *vitellina, Nectria dodgei* on, in El Salvador, 302.
Cruciferae, *Alternaria brassicae* on, in Holland, 477.
—, *Phoma lingam* on, in Puerto Rico, 362.
—, *Xanthomonas campestris* on, in U.S.A., 585.
Crumenula abietina on pine in Holland, 516.
Cryptodiaporthe castanea on chestnut in France, 39.
Cryptomeria japonica, Botrytis cinerea on, in Japan, 582.
— —, *Corticium solani* on, in Japan, 153.
[*Cryptomeria japonica*], *Fusarium* on, control, 153.
— —, *Poria obliqua* on, resistance to, 359.
— —, *Sclerotinia kitajimana* on, in Japan, 582.
Cryptomyces maximus on *Salix alba* var. *coerulea* in Great Britain, 463.
Cryptomyzus ribis transmitting *Dahlia* mosaic virus and turnip mosaic virus, 369.
Cryptonol, use of, against citrus moulds, 431.
Cryptosporella viticola on vine in Canada, 54; S. Africa, 473.
Cryptostroma corticale on *Acer pseudoplatanus* in England, 304, 582; *Coniosporium corticale* renamed, 304.
Cucumber (*Cucumis sativus*), bean yellow dot virus can infect, 266.
—, *Cladosporium cucumerinum* on, in Holland, 479; U.S.A., 290; control, 479, 564.
—, *Colletotrichum lagenarium* on, in Germany, 584.
—, *Corynespora cassiicola* on, in Germany, 584; Holland, 479.
—, *Erwinia* can infect, 218.
—, — *tracheiphila* on, factors affecting, 418.
—, *Erysiphe cichoracearum* on, (?) in Germany, 139; control, 248, 564.
—, — *polyphaga* on, in Switzerland, 148.
—, *Fusarium* on, in Germany, 314; losses caused by, 315.
— green-mottle mosaic virus on *Lagenaria leucantha* in India, 420, 531; inactivation of, by plant extracts, 531; transmission of, to *Solanum nigrum, S. nodiflorum*, and tobacco, 531.
—, lupin virus can infect, 241.
— mosaic virus on *Aristolochia durior* in Sweden, 417.
— — — on bean and beet, 221.
— — — on *Bunias orientalis* in Sweden, 417.
— — — on *Calendula* in Germany, 369; transmission of, by *Pharalis tanaceti*, 369.
— — — on *Canna indica* in the Philippines, 119.
— — — on cantaloupe in U.S.A., 166.
— — — on celery, 46.
— — — on chilli, 166.
— — — on *Chrysanthemum* in England, 491; technique for detecting, 491.
— — — on *Cleome spinosa* in U.S.A., 273.
— — — on *Commelina gigas* in U.S.A., 166.
— — — on cucumber in England, 238; Germany, 369; electron microscope study of, 276; factors affecting, 474; host range of, 238; transmission of, by aphids, 369.
— — — on cucurbits in U.S.A., 368; transmission of, by beetles, 368.
— — — on *Euphorbia corollata* in U.S.A., 273, 290.
— — — on *Gladiolus* in New Zealand, 319; U.S.A., 273, 385, 435; host range of, 435.
— — — on honeysuckle in Sweden, 417.
— — — on *Leonurus cardiaca* in U.S.A., 273.
— — — on lupin in Germany, 587.
— — — on maize, 435; in the Philippines, 119; transmission of, by aphids, 119.
— — — on *Melandrium album* in U.S.A., 273.
— — — on *Mollugo verticillata* in U.S.A., 273.
— — — on *Musa textilis* in the Philippines, 119.
— — — on passion fruit in New S. Wales and Tanganyika Territory, 225.
— — — on *Phlox* in U.S.A., 273, 290.
— — — on *Phytolacca*, 221.
— — — on *Polemonium caeruleum* in U.S.A., 273.
— — — on *Primula obconica* in England, 220.

[Cucumber mosaic virus] on *Rudbeckia* in U.S.A., 273.
— — — on *Salvia patens* in U.S.A., 273.
— — — on *Silene cucubalus* in U.S.A., 290.
— — — on spinach in England, 220; Sweden, 417; strain of, 220; transmission of, by *Myzus persicae*, 220; to *Datura stramonium*, *Delphinium*, *Nicotiana glutinosa*, and *Stellaria*, 417; tobacco, 220, 417.
— — — on tobacco, 220, 356, 417, 435.
— — — on tomato in Austria, 406; Holland, 580; U.S.A., 34; transmission of, by *Macrosiphum euphorbiae*, 580.
— — — on turnip in England, 221.
— — — on *Valeriana officinalis* in U.S.A., 273.
— — — on *Zinnia*, 121, 284, 435.
— — —, transmission of, by *Macrosiphum euphorbiae* and *Myzus ornatus*, 221.
— — —, watermelon mosaic virus (?) identical with southern celery strain of, 542.
— — —, western, can infect vegetable marrow, 34.
— — —, —, on celery, 46.
— — —, —, on cucumber, 34.
— — —, —, on *Primula obconica*, 18.
— — —, —, on tomato in U.S.A., 34.
—, *Phlox* virus can infect, 238.
—, *Pseudomonas lacrymans* on, in U.S.A., 272, 290, 472; control, 273, 564; factors affecting, 290; spread of, 273; study on, 472; transmission of, by (?) *Acalymma vittata* and (?) *Diabrotica undecimpunctata howardi*, 272; varietal reaction to, 314.
—, — *marginalis* can infect, 165.
—, *Pseudoperonospora cubensis* on, in U.S.A., 368; leaf maturity in relation to infection by, 102; varietal reaction to, 368, 542.
—, red currant ring spot virus can infect, 245.
—, southern squash mosaic virus can infect, 166.
—, tobacco ring spot virus can infect, 435.
— virus diseases, technique for diagnosing, 421.
—, *Xanthomonas translucens* on, production of protopectinase by, 230.
Cucumis melo, see Cantaloupe, Melon.
— — and its vars. *inodorus* and *utilissima*, see Melon.
— — var. *cantaloupina*, see Cantaloupe.
— *sativus*, see Cucumber.
Cucurbita maxima, see Squash.
— *pepo*, see Vegetable marrow.
Cucurbitaceae, cantaloupe mosaic virus on, in U.S.A., 368.
—, cucumber mosaic virus on, in U.S.A., 368; transmission of by beetles, 368.
—, musk melon mosaic virus on, in U.S.A., 368.
—, — — vein necrosis on, in U.S.A., 368.
—, *Pseudoperonospora cubensis* on, in Canada and U.S.A., 226.
—, squash mosaic virus on, in U.S.A., 368.
—, western watermelon mosaic virus on, in U.S.A., 368.
Cucurbitaria pithyophila on pine and scale insects in U.S.A., 384.
Culture collections in New Zealand, 291; United Kingdom and Crown Colonies, 291.
Cultures, lyophilization of, apparatus for, 568.
Cumminsiella sanguinea on barberry in Yugoslavia, 594.
Cunila origanoides, *Puccinia menthae* on, in U.S.A., 351.
Cunninghamella, (?) *Septonema* on, 136.
Cupferron, mercury complex of, use of, against *Pythium ultimum* on radish, 51.
Cupral, use of, against *Alternaria solani* on tomato, 584; *Ascochyta pisi* and *A. pinodella* on pea, *Colletotrichum lagenarium* on cucumber, *C. lindemuthianum* on bean, *Corynespora cassiicola* on cucumber, melon, and vegetable marrow, *Mycosphaerella pinodes* on pea, and *Phytophthora infestans* and *Septoria lycopersici* on tomato, 584; with debena, 444; with insecticides, 502.
Cupremul, use of, against *Sphaerotheca pannosa* on rose, 479.
Cupressus, *Monochaetia unicornis* on, in New S. Wales, 225.
— *lusitanica* and *C. macrocarpa*, *Monochaetia unicornis* on, in E. Africa, 8.
— *sempervirens* var. *glauca*, *Phytophthora cinnamomi* on, in U.S.A., 553.
Cupric, see Copper.
Cuprocide injury to bean, 265; turnip, 264.
—, use of, against damping-off of lettuce, 5; as a seed treatment for vegetables, 264.
—, yellow, use of, against *Exobasidium vexans* on tea, 355; moulds on cork disks, 346; *Xanthomonas juglandis* on walnut, 152.
— 54-Y, use of, against *Pseudoperonospora humuli* on hops, 206.
Cupro-deril wash, use of, against *Oidium begoniae* on *Begonia*, 123.
Cuproil injury to tea, 517.
—, use of, against *Phytophthora infestans* on potato, 80.
Cuprokylt, use of, against *Exobasidium vexans* on tea, 355; *Marssonina panattoniana* on lettuce, 247; *Phytophthora infestans* on potato, 81, 247; tomato, 247; *Septoria apii* on celery, 247.
Cuprolane, use of, against *Venturia inaequalis*, 496.
Cupro-maag, use of, against *Plasmopara viticola* on vine, 275; *Venturia inaequalis*, 67.
Cuprosana, use of, against *Exobasidium vexans* on tea, 517, 579.
Cuprox, use of, against *Corynebacterium michiganense* on tomato, 319; *Phytophthora cryptogea* on tomato, 522; *P. infestans* on tomato, 247; with debena, 444.
Currants (*Ribes* spp.), *Cronartium ribicola* f. *indica* on, in India, 410; *Peridermium indicum* synonym of, 410.
—, *Pseudopeziza ribis* on, in Denmark, 172; Norway, 559.
—, red currant ring spot virus on, in England intercepted from Holland, 245.
—, *Sphaerotheca mors-uvae* on, in U.S.A., 24.
—, virus diseases (new) of, in England, 171.
Curvularia, 135.
— in the air in India, 567.
— on cotton textiles, control, 30.
— *geniculata* and *C. inaequalis* on turf in U.S.A., 330.
— *lunata* on cellulose fibres, 569.
— — on *Gladiolus* in U.S.A., 490.
— — on turf in U.S.A., 330.
— *maculans* on *Hevea* rubber in Indo-China, 206.
— *spicifera* on rice in Costa Rica, 372.
Cuscuta campestris transmitting lucerne witches' broom virus, 332.
Cyamopsis tetragonoloba, *Corticium solani* and *Neocosmospora vasinfecta* on, in India, 386.
— —, *Fusarium* on, in India, 258, 557.
— —, — *caeruleum* on, in India, 386.
— —, *Gibberella fujikuroi* on, in India, 557.
— —, *Sclerotium rolfsii* on, in India, 386.
— —, use of, as a test plant for tobacco white necrosis virus, 405.
Cyanamide, effect of, on *Tilletia caries*, 278.

Cyanogas, effect of, on manganese deficiency in oats, 50.
—, use of, against *Phytophthora* on *Cinchona ledgeriana*, 207.
Cyclamen, *Nectria rubi* on, in Tanganyika Territory, 226; *Cylindrocarpon janthothele* imperfect state of, 226.
Cycloconium oleaginum on olive in N. Africa, 616; U.S.A., 25.
Cydonia vulgaris, see Quince.
Cylindrocarpon on strawberry in U.S.A., 562.
— *cylindroides* var. *tenue* conidial state of *Nectria cucurbitula*, 92.
— *janthothele* imperfect state of *Nectria rubi*, 226.
— *mali* on pear in Sicily, 127.
— *radicicola* on tomato in England, 222.
Cylindrocladium on cherry and plum in Great Britain, 211.
— on tea in Ceylon, 211; India, 461.
— *scoparium* var. *brasiliensis* on *Eucalyptus* in Brazil, 524.
Cyllin, black, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Cymbidium, *Cattleya* virus can infect, 490.
Cymbopogon nardus and *C. winterianus*, sugar-cane mosaic virus on, in Brazil, 459; *Cymbopogon* mosaic virus (?) a strain of, 459.
Cynara scolymus, see Artichoke.
Cynodon, *Cerebella cynodontis* on, in Portuguese W. Africa, 302.
— *dactylon*, association of, with vine degeneration in U.S.A., 48.
— —, *Helminthosporium giganteum* on, in U.S.A., varietal resistance to, 124.
— —, lucerne dwarf virus can infect, 168.
— —, *Puccinia cynodontis* on, in Sierra Leone, 476.
— —, *Ustilago cynodontis* on, in Portuguese W. Africa, 302.
Cynoglossum, *Puccinia dispersa* on, 376.
Cyperus, *Deuterophoma tracheiphila* on, 604.
Cyphomandra betacea, *Phytophthora infestans* on, 636.
— —, potato witches' broom virus can infect, 53.
— —, tobacco mosaic virus on, in U.S.S.R., 274.
— —, tobacco rosette virus on, in Tanganyika Territory, 225.
Cypress, see *Cupressus*.
Cystopus candidus on horse-radish in U.S.A., breeding against, 466.
— *occidentalis* on spinach in U.S.A., 589.
Cytisus scoparius, lucerne dwarf virus can infect, 168.
Cytospora on poplar, 260.
— *cedri* on cedar in Italy, 464.
— *microspora* on quince in Chile, 354.
— *sacchari* on sugar-cane in Mexico, 375.
Cytosporina on apricot in S. Australia and Tasmania, 497.
— *ramealis* and *C. rubi* synonyms of *Rhabdospora ramealis*, 561.

2, 4-D, effect of, on *Claviceps purpurea* on wheat, 323; *Helminthosporium sativum*, 179; *Penicillium digitatum* and *P. italicum* on orange, 603; *Puccinia coronata* and *P. graminis*, 179; soil fungi, 255.
Dactylaria gracilis and *D. psychrophila* on nematodes in Great Britain, 16.
Dactylella asthenopaga and *D. heterospora* on nematodes in Great Britain, 16.
— *lobata* on nematodes in England, 283.
Dactylis, *Microthyrium culmigenum* on, in Great Britain, 89.
[*Dactylis*] *glomerata*, *Calonectria nivalis* on, in Finland, 556.
— —, *Corticium solani* on, resistance to, 19.
— —, *Passalora graminis* on, in S. Africa, 460.
— —, *Puccinia coronata* on, in Mexico, 372.
— —, — *graminis* on, 278; in Australia, 330.
— —, *Typhula*, *T. borealis*, and *T. itoana* on, in Finland, 556.
Dactylium on mushroom, control, 531, 589.
Daedalea quercina, antagonism of, to basidiomycetes, 583.
— —, compatibility between strains of, 509.
— — on *Eucalyptus* in Portugal, 92.
— — on oak, 409; in Yugoslavia, 347; antagonism of a bacillus to, 347.
— — on timber, 526; in Great Britain, 154.
— —, production of antibiotics by, 583.
— *unicolor*, antagonism of, to basidiomycetes, 583.
— —, compatibility between strains of, 509.
— —, production of antibiotics by, 583.
Dahlia, *Bacterium tumefaciens* on, factors affecting, 106.
—, *Choanephora* on, in U.S.A., 554.
—, — *infundibulifera* on, in India, 554.
—, *Entyloma dahliae* on, in Italy, 607; synonymy of, 607.
— mosaic virus on *Dahlia* in Germany, 369; Holland, 478; New S. Wales, 104; control, 104; indicator plants for, 121; technique for extracting, 121; transmission of, by aphids, 369; *Aphis fabae*, *A. gossypii*, *Macrosiphum solanifolii*, *Myzus convolvuli*, and *M. persicae*, 121; by rubbing, 121; to *Coreopsis douglasii*, *Sanvitalia procumbens*, *Verbesina encelioides*, and *Zinnia elegans*, 121.
—, tomato spotted wilt virus on, in Holland, 478.
—, virus-free stocks of, in Scotland, 434.
Dalbulus elimatus transmitting maize stunt virus, 370.
— *maidis* transmitting maize stunt virus, 61, 318.
Daldinia concentrica on timber in Great Britain, 154.
Damp chamber, improved form of, 447.
Damping-off of bean in Holland, 479.
— of beet, 533.
— of coffee in the Belgian Congo, 422.
— of Coniferae, 639.
— of maize in Holland, 479.
— of pea in Holland, 479; control, 247, 365, 479.
— of pine in Canada, 412; U.S.A., 192.
— of spinach in U.S.A., 289.
— of tobacco, control, 249.
Damson (*Prunus insititia*), band mosaic virus in Switzerland, 245.
—, plum mosaic virus on, in New Zealand, 336; (?) Switzerland, 224; host range of, 336.
Daphne mezereum, cucumber mosaic virus on, in England, 238.
— —, *Daphne* mosaic virus on, in Denmark, 172.
Dasyscypha synonym of *Lachnella*, 461.
— *calycina* renamed *Lachnella hahniana*, 461.
— *willkommii* on larch in Holland, 516.
Date palm (*Phoenix dactylifera*), *Fusarium albedinis* on, geographical distribution of, 160.
— —, *Graphiola phoenicis* on, in Somaliland, 33.
Datura metel, potato virus Y on, in U.S.A., 293.
— *meteloides*, tomato bushy stunt virus on, virus increment curves for, 368.
— *stramonium*, bean yellow dot virus can infect, 266.
— —, cucumber mosaic virus can infect, 417, 435.

[*Datura stramonium*, cucumber] green-mottle mosaic virus inactivated by extracts of, 531.
— —, lucerne witches' broom virus can infect, 125.
— —, potato dwarf shrub virus can infect, 398.
— —, — virus X can infect, 203, 452.
— —, red currant ring spot virus can infect, 245.
— —, *Tagetes patula* mosaic virus can infect, 172.
— —, tobacco etch virus on, 520.
— —, — ring spot virus on, 138, 435.
— *taiula*, *Bacterium tumefaciens* on, factors affecting, 106.
— —, potato leaf roll virus on, 169; transmission of, by *Myzus persicae*, 624.
Daucus carota, see Carrot.
D-D, use of, against *Phytophthora* on *Cinchona ledgeriana*, 207; *Sphacelotheca reiliana* on maize, 324; *Verticillium albo-atrum* on strawberry, 562.
DDT, effect of, on susceptibility of wheat to *Puccinia triticina*, 483.
—, use of, against potato leaf roll virus, 170; with fungicides, 31, 267, 268, 275, 370, 372, 451.
Debaryomyces, taxonomy of, 568.
Debena, fungicidal action of, 564.
—, use of, against *Alternaria brassicicola* on cabbage, *A. tenuis*, *Ascochyta pinodella*, and *Corticium solani*, 444; *Didymella applanata* on raspberry, 444; *Fusarium culmorum*, 444; *Leptosphaeria coniothyrium* on raspberry, 444; *Phoma apiicola*, 444; as a wetter, 444.
Debenal, effect of, on cereal rusts, 176.
1, 2-decanediol, use of, as a fungicide, 27.
Delphiniobium junackianum transmitting cucumber mosaic virus, 369; *Delphinium* virus, 370.
Delphinium, cucumber mosaic virus can infect, 417.
— virus in Germany, 370; transmission of, by *Delphiniobium junackianum*, 370.
Dendrobium nobile, virus disease of, in U.S.A., 491.
Dendrophoma obscurans on strawberry in Canada, 442.
Dendryphion penicillatum imperfect state of *Pleospora papaveracea*, 85.
— — var. *sclerotiale* on opium poppy in Germany, 85.
Deodar (*Cedrus deodara*), *Phytophthora cinnamomi* on, U.S.A., 553.
Deril, use of, with forsal, 123.
Dermea, taxonomy of, 461.
Dermocybe, production of antibiotics by, 583.
Derris elliptica, *Colletotrichum derridis*, *Diplodia*, and *Gibberella fujikuroi* on, in Java, 86.
Desplatsia lutea, *Calonectria rigidiuscula* can infect, 232.
Deuterophoma tracheiphila on citrus, early diagnosis of, 605; toxicity of culture filtrates of, 604.
— — on orange in N. Africa, 63.
Diabrotica undecimpunctata, *Beauveria* on, in the Pacific Northwest, 116.
— —, *Spicaria gracilis* can infect, 116.
(?) — — *howardi* transmitting *Pseudomonas lacrymans*, 272.
1:4-diacetoxy-2:3-dichloronaphthalene, use of, against *Botrytis fabae*, *Cladosporium fulvum*, and *Sclerotinia laxa*, 291.
Diachea leucopoda on strawberry in S. Australia, 344.
6, 6′ diallyl-α, α′-bis (diethylamino)-dihydrochloride of 4, 4′ bi-*o*-cresol, use of, as a fungicide, 26.
Dianthus barbatus, carnation mosaic virus can infect, 122.
— *caryophyllus*, see Carnation.
Diaporthe citri on orange, control, 543.
—, toxicity of phenolic compounds to, 340.
— —, use of, in testing fungicides, 27.
— *perniciosa* on apple in Holland, 477.
— *phaseolorum* var. *batatatis* on soy-bean in U.S.A., 268.
4-dibromobutene-2, use of, against *Fusarium*, *Pythium*, and *Rhizoctonia* in celery, 269.
1, 1-dibromo-2, 2-di-iodoethylene, effect of, on *Venturia inaequalis*, 341.
Dibutyl-naphthalene sodium sulphonate a constituent of debena, 444.
Dichloro-*p*-benzoquinones, toxicity of, to *Alternaria brassicicola*, 340.
2:3-dichloronaphthohydroquinone, use of, against *Sclerotinia laxa*, 290.
Dichloronaphthoquinone, use of, against damping-off of beet, 533; *Sclerotina laxa*, 290; *Venturia inaequalis*, 611.
Dichlorophenol, fungicidal properties of, 340.
2, 4-dichloro-phenoxyacetic acid, use of, with semesan, 113.
NN'bis (2, 4-dichlorophenyl) urea, use of, against *Botrytis fabae* on broad bean, 445.
Dichlorpheno-oxymethylthiocyanate, use of, as a timber preservative, 465.
Dictyophloca in Jamaica, Trinidad, and Venezuela, 300.
Didymascella thujina on *Thuja plicata* in Alaska, 401.
Didymella applanata on raspberry in Germany, 444; Switzerland, 49, 223; Yugoslavia, 337, 594.
— *lycopersici* in soil, viability of, 222.
— — on tomato, 222; in the Channel Islands, 635; Denmark, 172; control, 564, 635.
Didymellina dianthi on carnation in India, 634.
— *macrospora* on *Freesia*, control, 385.
Didymosphaeria dimastospora on *Arbutus unedo* in Portugal, 301.
— *maydis* on maize in French Equatorial Africa, 280.
— *populina* on aspen and poplar in U.S.A., 39.
— — synonym of *Endostigme populina*, 91.
— *rhododendri* on *Arbutus unedo* in Portugal, 301.
Didymosporella, taxonomy of, 402.
Dielectric heat, use of, against *Ustilago tritici* on wheat, 428.
Diesoline, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Digitalis, *Colletotrichum fuscum* on, in U.S.A., 256.
Digitaria horizontalis, sugar-cane mosaic virus on, in S. Africa, 144.
— *ischaemum*, (?) wheat mosaic virus on, in U.S.A., 177.
— *sanguinalis*, lucerne dwarf virus can infect, 168.
— —, *Ustilago rabenhorstiana* on, in New S. Wales, 225.
Dihydrostreptomycin sulphate, use of, against *Pseudomonas medicaginis* f. sp. *phaseolicola* and *Xanthomonas phaseoli* on bean, 468.
Dill (*Peucedanum graveolens*), *Fusarium* on, in U.S.A., 576.
—, *Phoma anethi* on, in Denmark, 172, 224.
Dimethyl-dithio-, 2,4-dinitrophenol ester of carbamic acid, use of, as a fungicide, 27.
4,5-dimethyl-2-mercaptothiazole, fungicidal properties of derivatives of, 27.

3,5-dimethyl-4-nitroso-1-(*p*-tolyl)-pyrazole, use of, as a fungicide, 26.
Dimorphotheca annua, *Fusarium* on, in U.S.A., 18.
— *barberiae*, *Gibberella baccata* on, in England, 17.
Dinaphthalene acetic acid, effect of, on crown gall tissue cultures of *Scorzonera hispanica*, 544.
Dinitro capryl phenyl crotonate, use of, against powdery mildews, 248.
Dinitro-*o*-cresylate, use of, against *Elsinoe veneta* on raspberry, 69.
2-4-dinitro-6-cyclohexyl phenol, dicyclohexylamine salt of, use of, against powdery mildew, 248.
2,4-dinitro-1-naphthol, use of, as a fungicide, 26.
Dinitrophenyl derivatives of strains of tobacco mosaic virus, 355.
Dinoc, use of, against *Venturia inaequalis*, 496; *V. pirina*, 21.
Dioxane, use of, against *Bacterium tumefaciens* on *Tagetes patula* and tomato, 322.
Diospyros, mycorrhiza of, in U.S.S.R., 622.
— *kaki* and *D. virginiana*, see Persimmon.
Dioxime *p*-quinone, use of, as a fungicide, 26.
Dioxy-dichloro-diphenylmethane, sodium salt of, use of, against moulds in sodium carboxymethylcellulose, 345.
Dipcadi serotinum, *Puccinia hordei* on, 376.
Diphenyl, use of, against *Penicillium* on orange, 603.
4-diphenylamine, use of, as a fungicide, 26.
Diplocarpon earliana on strawberry in Canada, 442; Jamaica, 8.
— — renamed *Fabraea earliana*, 461.
— *rosae* on rose in Peru, 208; S. Africa, 552; varietal reaction to, 185.
— — renamed *Fabraea rosae*, 461.
Diplodia on *Derris elliptica* in Java, 86.
— on maize in U.S.A., 280.
— *gossypina* on cotton in U.S.A., 326.
— *macrospora* on maize, geographical distribution of, 160.
— *natalensis*, on citrus, control, 563; differentiation of *Botryodiplodia theobromae* from, 237.
— — on orange, control, 543.
— —, toxicity of fungocin to, 395.
— —, use of, in testing fungicides, 27.
— *pinea* on pine in Argentina, 1; previously recorded as *Sphaeropsis pinicola*, 1.
— *zeae* on maize in Canada, 52; Rhodesia, 487; U.S.A., 61; breeding against, 370; varietal reaction to, 326.
— *zeicola* on maize in French Equatorial Africa, 280.
Diplodina on wheat, 58.
— *drouillonii* on maize in French Equatorial Africa, 280.
Dipotassium phosphate, effect of, on plant viruses, 474.
Discomycetes, culture of, 516.
— in Britain, 208; Holland, 516; N. America, 460.
—, inoperculate, taxonomy of, 460.
Dithane, effect of L-histidine on, 392.
—, use of, against *Phytophthora infestans* on potato, 54; on tomato, 226, 372; *P. parasitica* on grapefruit, lemon, and orange, 380; tomato diseases, 303.
— D14, use of, against *Peronospora destructor* on shallot, 478; *Phytophthora fragariae* on strawberry, 71; *P. infestans* on potato, 52, 370, 572; on tomato, 35; potato tuber rot, 53.
— D 78, use of, against *Peronospora destructor* on shallot, 478; *Phomopsis dauci* on carrot, 163.
[Dithane] M4A and M6A, use of, against *Phytophthora infestans* on tomato, 542.
— Z-78, use of, against *Cladosporium cucumerinum* on cucumber, 479; *Corticium sasakii* on rice, 575; *Exobasidium vexans* on tea, 355; *Helminthosporium turcicum* and *Puccinia sorghi* on maize, 13; *Ophiobolus miyabeanus* on rice, 294; *Peronospora destructor* on onion and shallot, 268; *Phytophthora infestans* on potato, 370, 476, 572; on tomato, 35, 542, 580; *Pseudoperonospora cubensis* on watermelon, 542; *Puccinia asparagi* on *Asparagus*, 478.
Dithiosalicylic acid, use of, against *Tilletia caries*, 484.
Ditylenchus dipsaci on *Calceolaria integrifolia*, *Verticillium sphaerosporum* parasitizing in Scotland, 64.
DL-tryptophanė, inhibition of *Bacterium tumefaciens* by, 230.
D.N.C. winter wash, toxicity of, to *Bacterium tumefaciens*, 595.
Dodder transmitting tobacco mosaic virus, 403.
Dodecyl-hydrobromide of guanidine, use of, as a fungicide, 27.
1-dodecyl-1-methyl-piperidinium iodide, use of, as a fungicide, 27.
Dogwood, see *Cornus*.
Dolicholus, *Uromyces dolicholi* on, geographical distribution of, 160.
Dolichos biflorus, *Fusarium* on, in India, 258.
Doralina mordwilkiana transmitting cucumber mosaic virus, 369.
— *transiens* transmitting turnip mosaic virus, 369.
Doronicum grandiflorum, *Sphaerotheca fusca* on, 555.
Dothichiza populea on poplar in U.S.A., 39, 639; control, 261, 639.
Dothidella oleandrina on oleander in Spanish Morocco, 577.
— *ulei* on *Hevea* rubber, 458; in Costa Rica, 375; control, 55, 295, 375.
Dow 9 B injury to turnip, 264.
— —, use of, against *Fusarium oxysporum* f. *gladioli* on *Gladiolus*, 119; *Puccinia carthami* on safflower, 459; *Xanthomonas malvacearum* on cotton, 115; as a seed treatment for cotton, 422; for vegetables, 264.
Dowfume MC-2, use of, against damping-off of tobacco, 248.
— N, use of, against *Thielaviopsis basicola* on tobacco, 259.
— W 40, use of, against pine root rot, 308.
Dowicide A, use of, against citrus decay, 543; *Fusarium oxysporum* f. *gladioli* on *Gladiolus*, 119.
— B and 9B, use of, against *Fusarium oxysporum* f. *gladioli* on *Gladiolus*, 119.
Dowspray 66, use of, for killing potato haulms, 104.
Draeculacephala minerva transmitting lucerne dwarf virus, 168.
Drosophilin, production of, by *Hypholoma subatrata*, 622.
Duphar, use of, against *Venturia inaequalis*, 334.
Du Pont sticker-spreader, 236, 435.
Dupontia fisheri, nematodes on, in Canada, 285.
Dusting apparatus, 4, 99, 195, 502, 517, 630.
Dyes, effect of, on development of *Bacterium tumefaciens*, 106.
Dynacide, use of, against *Botrytis cinerea* on apple, 190; *Sphacelotheca sorghi* on sorghum,

181; *Ustilago avenae* and *U. kolleri* on oats, 178.
Dysaulacorthum vincae transmitting onion yellow dwarf virus, 369.

Earwig injury in relation to *Sclerotinia fructigena* on apple, 437.
Eau de Javelle, use of, against *Penicillium digitatum* and *P. italicum* on orange, 603.
Echinochloa colonum, Ustilago crus-galli on, in India, 493.
— *crus-galli*, lucerne dwarf virus can infect, 168.
Echium, Puccinia dispersa on, 376.
Ecology of fungi, 296, 514.
Eelworms, see Nematodes.
Eggplant (*Solanum melongena*), *Corticium sasakii* can infect, 83.
—, *Erwinia* can infect, 218.
—, *Fusarium* on, in India, 258.
—, *Leveillula taurica* on, in Palestine, 361; control, 563.
—, *Phomopsis vexans* on, in Mauritius, 538.
—, *Phytophthora infestans* on, in Israel, 361.
—, potato virus X can infect, 203.
—, *Sclerotium delphinii* can infect, 554.
Elaeagnus angustifolia and *E. macrophylla*, root nodules in, 36.
Elaeis guineensis, see Oil palm.
Elder (*Sambucus*), lucerne dwarf virus can infect, 168.
Electrical equipment, fungi on, control, 29.
— insulating tapes, fungi on, 136.
Electronic equipment, moulds on, control, 346, 507.
Elgetol, toxicity of, to *Bacterium tumefaciens*, 595.
—, use of, against *Bacterium tumefaciens* on peach and *Tagetes patula*, 480.
— -methanol, use of, against *Bacterium tumefaciens* on almond, peach, and walnut, 230.
Elm (*Ulmus*), *Ceratostomella ulmi* on, in Canada, 523; Germany, 536; Holland, 637; Sweden, 408; U.S.A., 228, 581; breeding against, 151; control, 408, 581; factors affecting, 637; legislation against, in Sweden, 408; U.S.A., 228; transmission of, by *Scolytus*, 408; varietal reaction to, 151, 637.
—, cowl-forming virus on, in Czechoslovakia, 38.
—, *Fusarium* on, in U.S.S.R., 357.
—, *Nectria cinnabarina* on, 151; varietal reaction to, 637.
— phloem necrosis in U.S.A., 228.
—, *Polyporus conchifer* on, in U.S.A., 214.
—, *Taphrina ulmi* on, in Chile, 354.
Elsinoe ampelina on vine in Central Asia, 316; S. Africa, 473; Uruguay, 591; geographical distribution of, 160.
— *australis* on orange in Bolivia, 182.
— *fawcetti* on citrus in U.S.S.R., 515.
— *piri* on apple in Argentina, 334; Chile, 354.
— — on pear in Argentina, 334.
— *randii* on pecan, control, 541.
— *veneta* on raspberry in Canada, 51, 69, 438; U.S.A., 499.
Elymus, (?) wheat mosaic virus on, in U.S.A., 177.
Empoasca papayae transmitting papaw bunchy top virus, 339.
Empusa aphidis on aphids in India, 634.
— *planchoniana* on *Aphis fabae* and *Myzus persicae* in England, 256.
Encoelia fascicularis on ash and poplar, 516.
Endive (*Cichorium endivia*), *Pseudomonas marginalis* on, 165; U.S.A., 530.
—, *Thielaviopsis basicola* on, 274.
Endoconidiophora virescens on timber, viability of, 41.
Endostigme populina on poplar in Italy, 91; synonymy of, 91.
Endothia, taxonomy of, 407.
— *fluens* synonym of *E. radicalis*, 407.
— *gyrosa* and *E. longirostris*, taxonomy of, 407.
— *parasitica* on chestnut, 39; in Italy, 358, 407, 408, 463, 464; Spain, Switzerland, and U.S.A., 463; Yugoslavia, 358, 463; control, 261, 358, 438; culture of, 358, 406; legislation against, in Yugoslavia, 638; study on, 438; varietal reaction to, 463.
— — on oak, 463; in Yugoslavia, 638.
— — synonym of *E. radicalis*, 407.
— *radicalis, E. parasitica* and *E. fluens* synonyms of, 407.
— *singularis* and *E. tropicalis*, taxonomy of, 407.
Entomophthora on *Paratetranychus citri* in U.S.A., 116.
—, spore discharge in, 567.
— *aphidis* on aphids in England, 256.
Entosordaria jacobifelicis on coffee in the Ivory Coast, 282.
Entyloma bingenensis on *Poa* in U.S.A., 330.
— *calendulae* f. sp. *dahliae* synonym of *E. dahliae*, 607.
— *crastophilum* on *Poa* in U.S.A., 330.
— *dahliae* on *Dahlia* in Italy, 607; synonymy of, 607.
— *ellisii* on spinach in U.S.A., 100.
— *irregulare* on *Poa* in U.S.A., 330.
— *montis-rainieri* on *Polemonium californicum* in U.S.A., 401.
— *oryzae* on rice, 458.
— *unamunoi* synonym of *E. dahliae*, 607.
Ephelis pallida on rice in Sierra Leone, 476.
Epichloe typhina in Sweden, 103.
— — on turf in U.S.A., 331.
Epicoccum purpurascens in soil, 634.
Eragrostis plumosa, Sclerospora butleri on, in India, 436.
— *trichodes*, (?) wheat mosaic virus on, in U.S.A., 177.
Eranthis hiemalis, Puccinia pruni-spinosae on, in Switzerland, 613.
Eremothecium ashbyi, production of riboflavin by, 291.
Ergot, see *Claviceps purpurea*.
Erica arborea, Polyporus ochroleucus on, in Portugal, 93.
— *gracilis, Erysiphe polyphaga* and *Oidium ericinum* on, in Switzerland, 148.
Eriobotrya japonica, see Loquat.
Erodium cicutarium, lucerne witches' broom virus can infect, 125.
— —, filaree red leaf virus on, in U.S.A., 19, 435; host range of, 435; specific reaction to, 435; transmission of, 19.
— *moschatum*, filaree red leaf virus on, in U.S.A., 19; transmission of, by *Aphis rumicis, Macrosiphum geranicola, M. pelargonii*, and *Rhopalosiphum prunifoliae*, 19.
Erwinia on pea in India, 218.
— *amylovora*, inhibition of, by streptomycin, 480.
— —, nutritional requirements of, 174.
— — on apple in U.S.A., (?) 333, 335; varietal reaction to, 227, 333, 335.
— — on pear in U.S.A., 242; varietal reaction to, 333.
— —, toxicity of circulin to, 276.
— — f. sp. *rubi* on raspberry in U.S.A., 131, 560.
— *ananas*, nutritional requirements of, 174.

[*Erwinia*] *aroideae*, action of, on pectate gel, 9.
— —, nutritional requirements of, 174.
— — on *Zantedeschia aethiopica* in Italy, 17.
— *carnegieana*, nutritional requirements of, 174.
— *carotovora*, action of, on pectate gel, 9.
— —, bacteriophage of, 107.
— —, biochemical study of, 594.
— —, inhibition of, by polymyxin, 480.
— —, nutritional requirements of, 174.
— — on broccoli, physiologic study on, 321.
— — on carrot, 321.
— — on *Cattleya* in U.S.A., 186.
— — on onion in U.S.A., 107.
— — on potato, 253, 321; physiologic study on, 320.
— — on spinach in U.S.A., 4.
— — on swede, 321; in Canada, 53; association of, with boron deficiency, 53.
— — on tomato, physiologic races of, 235; study on, 321.
— — on turnip, 321; in Holland, 312.
— —, production of protopectinase by, 230.
— —, toxicity of circulin to, 276.
— —, wilt-inducing polysaccharides from, 55.
— — f. sp. *parthenii*, nutritional requirements of, 174.
— — var. *delphinii*, nutritional requirements of, 174.
— *cassavae*, nutritional requirements of, 174.
— *cosmovora* on *Cosmos bipinnatus* in India, 555.
— *lathyri*, action of, on pectate gel, 9.
— *mangiferae*, *E. nimipressularis*, *E. oleraceae*, *E. rhapontici*, and *E. salicis*, nutritional requirements of, 174.
— *solanisapra*, biochemical study of, 594.
— *tracheiphila*, nutritional requirements of, 174.
— — on cucumber, factors affecting, 418.
— *vitivora* on vine in S. Africa, 473, 537.
Erysiphaceae, list of, in Japan, 577.
—, member of, on beet in Germany, 139.
Erysiphe cichoracearum on *Calendula*, cantaloupe, and *Chrysanthemum*, control, 248.
— — on cucumber (?) in Germany, 139; control, 248, 564.
(?) — — on potato in Germany, 139.
— — on tobacco in Italy, 461; control, 90, 461, 634.
— *graminis*, germinability of conidia of, 450.
— — in the air, 170, 618.
— — on barley in Denmark, 109; Germany, 378; Mexico, 372; U.S.A., 60, 279; breeding against, 324, 378; control, 248; physiologic races of, 324; varietal reaction to, 324, 372, 378.
— — on *Bromus catharticus* in U.S.A., 284.
— — on cereals, control, 171.
— — on *Poa pratensis* in U.S.A., 124.
— — on turf in U.S.A., 331.
— — on wheat in Switzerland, 484; physiology of, 547.
— *polygoni* on bean, breeding against, 218, 366; control, 248, 444, 529; technique for obtaining high incidence of, 529; varietal reaction to, 218, 266, 366.
— (?) — on cabbage in Jamaica, 8.
— — on clover, control, 248; varietal reaction to, 386.
— — on nettle in U.S.S.R., 129.
— — on pea in India, 98.
— *polyphaga* on cucumber and *Erica gracilis* in Switzerland, 148.
— — on sunflower in Holland, Switzerland, and Yugoslavia, 148.
Erythrina altissima, *Calonectria rigidiuscula* can infect, 232.
— *lithosperma* 'okra leaf' disease in Ceylon,
Erythropsis barteri, cacao virus 1 A can infect, 232.
Eschscholtzia. *Heterosporium eschscholtziae* on, in Mauritius, 538; U.S.A., 122.
Eschweilera luschnathii, *Stysanus microsporus* on, in Brazil, 488.
Ethanol mercuric chloride, use of, against *Tilletia caries*, 565.
Ether, effect of, on *Bacterium tumefaciens*, 106; on resistance of rice to *Ophiobolus miyabeanus*, 294.
Ethyl alcohol, effect of, on the bacteriophage of *Xanthomonas pruni*, 423.
— chloride, effect of, on *Bacterium tumefaciens*, 106.
— mercuric perthiocyanate, see KF 467.
— mercury thiosalicylate, use of, against apple rot, 610.
— α-naphthoate inducing variation in *Corynebacterium michiganense* and *Xanthomonas juglandis*, 106.
— -p-nitrobenzamide, fungicidal properties of, 72.
Ethylene, use of, against citrus decay, 543.
— chlorohydrin mercuric bromide, chloride, and iodide, use of, against *Tilletia caries*, 565.
— dibromide, use of, against *Phytophthora* on *Cinchona ledgeriana*, 207.
— oxide, use of, against moulds and yeasts in canned spices, edible colloidal gums, and flour, 505; as a soil disinfectant, 350.
Eucalyptus, *Cylindrocladium scoparium* var. *brasiliensis* on, in Brazil, 524.
—, *Daedalea quercina* on, in Portugal, 92.
—, *Fomes torulosus* on, in Portugal, 92.
—, *Hypoxylon mediterraneum* on, in Morocco, 409.
—, *Polyporus sulphureus* on, in Portugal, 92.
Eugenia aromatica, see Clove.
— *myrtifolia*, lucerne dwarf virus can infect, 168.
Euphorbia corollata, cucumber mosaic virus on, in U.S.A., 273, 290.
— *prunifolia* mosaic in Brazil, 568.
— —, *Sphaceloma krugii* on, in Brazil, 569.
— *pulcherrima*, effect of alternaric acid on, 305.
— —, *Xanthomonas poinsetticola* on, in India, 479.
Eutettix tenella transmitting beet curly top virus, 447.
Eutypa acharii on *Acer pseudoplatanus* in France, 638.
— *microspora* on coffee in the Ivory Coast, 282.
Eutypella coffeicola and *E. perplexans* on coffee in the Ivory Coast, 282.
Exobasidium camelliae var. *gracilis* on *Camellia sasanqua* in U.S.A., 553.
— *reticulatum* on tea in Japan, 258.
— *vaccinii* on *Rhododendron* in India, 634; S. Africa, 460; imported from Belgium, 460.
— *vexans* on tea in Ceylon, 355, 403, 516, 517, 579; India, 461; Japan, 258; Java, 210; Malaya, 517; control, 210, 258, 355, 403, 461, 516, 517, 518, 579; factors affecting, 210, 517; *Helopeltis* in relation to, 210; summary of discussions on, 210.
Exochorda racemosa, *Botrytis cinerea* on, production of toxin by, 253.

Fabraea earliana, *Diplocarpon earliana* renamed, 461.
— *rosae*, *Diplocarpon rosae* renamed, 461.

Fagopyrum esculentum, see Buckwheat.
Fagus, see Beech.
Falcispora synonym of *Selenophoma*, 353.
Favolus europaeus, antagonism of, to basidiomycetes, 583.
Ferbam injury to apple, 341; tomato, 522.
—, use of, against *Botrytis cinerea* on strawberry, 441; *B. gladiolorum* on *Gladiolus*, 186; *Elsinoe veneta* on raspberry, 499; *Guignardia bidwellii* on vine, 275; *Mycosphaerella angulata* on vine, 275; *Sphaerotheca humuli* on raspberry, 288; *Venturia inaequalis*, 53, 341, 611; *V. pirina*, 497; as a seed treatment for vegetables, 264.
Fermate retarding healing of freshly cut potato setts, 293.
—, use of, against apple diseases, 437; *Botrytis cinerea* on apple, 190; *Corticium solani* on *Hevea* rubber, 295; *Elsinoe veneta* on raspberry, 69; *Fusarium dianthi* on carnation, 227; *F. oxysporum* f. *gladioli* on *Gladiolus*, 119; *Gymnosporangium tremelloides* on apple, 559; lettuce damping-off, 5; *Peronospora manshurica* on soy-bean, 529; *Phytophthora* on *Cinchona ledgeriana*, 207; *Podosphaera leucotricha* on pear, 242; *Puccinia graminis* and *P. triticina* on wheat, 371; *P. menthae* on peppermint, 142; *P. sorghi* on maize, 371; *Venturia inaequalis*, 496, 534; *V. pirina*, 242.
Fernasan, effect of, on germination of tea seed, 578.
—, use of, against damping-off of pea, 247.
Ferradow, use of, against *Fusarium oxysporum* f. *gladioli* on *Gladiolus*, 119.
Ferric, see Iron.
Ferrisia virgata transmitting cacao swollen shoot virus, 425.
Ferrous, see Iron.
Fertilizers, effect of, on beet yellows virus, 217; cacao cherelle wilt, 424; cantaloupe mosaic virus, 273; citrus die-back and root rot, 537; *Corynebacterium sepedonicum* on tomato, 417; damping-off of pine, 412; *Erwinia tracheiphila* on cucumber, 418; *Fusarium bulbigenum* var. *niveum* on watermelon, 418; manganese deficiency in oats, 50; nickel toxicity to crops, 631; nitrogen deficiency in *Pseudotsuga taxifolia*, 307; *Phytophthora cinnamomi* on avocado pear, 617; pine root rot, 308; *Piricularia* on *Pennisetum purpureum*, 538; *Piricularia oryzae*, 82, 399; on rice, 456; potato leaf roll virus, 202, 571; *Ramularia bellunensis* on *Chrysanthemum cinerariifolium*, 423; *Sclerotinia trifoliorum* on clover, 286; *Taraxacum kok-saghyz* diseases, 84; tomato blossom-end rot, 214; *Ustilago maydis*, 325; *Verticillium albo-atrum* on tomato, 35; vine chlorosis, 274; *Xanthomonas campestris* on cabbage, 417.
Festuca, *Rhizoctonia* (?) *microsclerotia* can infect, 367.
— *elatior* var. *arundinacea*, *Corticium solani* on, in U.S.A., 19, 422.
— — — —, *Helminthosporium dictyoides* on, in U.S.A., varietal reaction to, 422.
— *pratensis* and *F. rubra*, *Calonectria nivalis*, *Typhula borealis* and *T. itoana* on, in Finland, 556.
Fibre insulating board, preservation of, 396.
Ficus carica, see Fig.
— *elastica*, *Phakopsora fici-elasticae* on, in India, 88.
Fiebierella florii transmitting western peach X-disease virus, 22.
Fig (*Ficus carica*), coal tar fumes causing injury to, in Italy, 29.
—, *Kuehneola fici* on, in Somaliland, 33.
— mosaic virus in Yugoslavia, 616.
—, *Rhizoctonia* (?) *microsclerotia* can infect, 367.
—, virus diseases of, in Yugoslavia, 613.
Filberts, see *Corylus*.
Filter paper, bacteria and fungi on, 447, 450.
Fir, see *Abies*.
Fish oil resin soap, use of, against *Bemisia tabaci*, 6.
Flax (*Linum usitatissimum*), *Alternaria* on, in Australia, 117; Northern Ireland, intercepted from Canada, 593.
—, *Aspergillus* on, in Australia, 117.
—, *Botrytis cinerea* on, in Australia, 117; Great Britain, 593.
—, calcium deficiency in, in Australia, 117.
—, *Colletotrichum linicola* on, in Australia, 117; antagonism of soil micro-organisms to, 238.
—, 'false' browning of, in Australia, 117.
—, *Fusarium culmorum* on, in Victoria and Western Australia, 117.
—, — *lini* on, in Argentina, 343; Canada, 52; England, 195; control, 195, 343; production of fat by, 252; varietal reaction to, 52, 552.
—, *Melampsora lini* on, in Abyssinia, 32; Argentina, 433; Australia, 117; India, 539; New S. Wales, 185; U.S.A., 489; U.S.S.R., 116; breeding against, 489; effect of, on yield, 433; factors affecting, 433; 'free' phosphorus compounds in relation to, 117; genetics of, 489; life-cycle of, 433; physiologic races of, 116, 185, 539; technique for inoculating, 185; varietal reaction to, 116, 185, 328, 489, 538, 552.
—, *Mucor* on, in Australia, 117.
—, *Phoma* on, in Northern Ireland, 593.
—, *Polyspora lini* on, in Czechoslovakia, 384; Victoria, 117; losses caused by, 384; technique for detecting, 117, 118.
— seed damage, 117.
—, *Septoria* on, in Australia, 117.
—, *Sphaerella linorum* on, in Canada, 433; varietal reaction to, 552.
—, zinc deficiency in, in Australia, 117; Western Australia, 185.
Floridan, use of, against *Diplodia natalensis*, 563.
Flour, *Aspergillus*, *A. candidus*, *A. glaucus*, and *A. niger* on, in India, 505.
—, moulds on, in U.S.A., 345; control, 505.
—, *Rhizopus* on, in India, 505.
—, yeasts on, control, 505.
Fluorine in smoke-damaged plants, determination of, 74.
— scorch of *Gladiolus*, control, 554.
— smoke injury to plants, 135.
Fluosilicic acid, use of, as a timber preservative, 525.
Foeniculum vulgare, *Microascus trigonosporus* on, in Denmark, 224.
Folosan, use of, against *Botrytis cinerea* on *Freesia*, 385.
— DB 905, composition of, 26.
Fomes, culture of, 30.
— *annosus*, antagonism of *Peniophora gigantea* to, 640.
— —, antibiotic effect of, on *Bacterium coli* and *Staphylococcus aureus*, 569.
— —, control, 155.
— —, culture of, 93.
— — on *Abies grandis* in Norway, 92.
— — on coniferae in England, 640.
— — on larch in England, 262; Norway, 92.
— — on pine in Denmark, 412; England, 262; Norway, 92.

[*Fomes annosus*] on *Pseudotsuga taxifolia* in England, 262; Norway, 92.
— — on spruce in England, 262; Norway, 92.
— — on timber in Portugal, 92; control, 465.
— — on *Tsuga heterophylla* in Alaska, 401; Canada, 215.
— — on wood pulp, effect of bacterium culture filtrates on, 156.
— *connatus* on *Acer* in Canada, 51.
— *ferruginosus* on timber in Great Britain, 154.
— *fomentarius*, culture of, 93.
— — on beech in Germany, 91.
— — on oak and timber in India, 410.
— *fulvus*, compatibility between strains of, 509.
— *igniarius*, antagonism between *Poria obliqua* and, 359; of, to basidiomycetes, 583.
— —, culture of, 93.
— — on *Acer* in Canada, 51.
— — on aspen in U.S.A., 260.
— — on timber in Sweden, 94.
— *lignosus* on cacao in New Guinea, 9.
— — on *Hevea* rubber in the Belgian Congo, 423; Ceylon, 205, 629; in Indonesia, 399.
— — and *F. lividus* on timber in India, 95.
— *noxius* on cacao in New Guinea, 9.
— — on coffee in India, 15.
— — on *Hevea* rubber in Ceylon, 629; Indonesia, 399.
— *pini*, compatibility between strains of, 509.
— —, culture of, 93.
— — on *Tsuga heterophylla* in Canada, 215.
— *pinicola* on *Abies balsamea* in Canada, 51, 413.
— — on *Abies pindrow* in Pakistan, 361.
— — on *Tsuga heterophylla* in Canada, 215.
— *ribis* f. *ulicis* on gorse in Portugal, 93.
— *rimosus* on *Pistacia lentiscus* var. *chia* in Greece, 256.
— *robustus* on oak in Portugal, 92.
— — on *Tsuga heterophylla* in Alaska, 401.
— *roseus* on timber in Great Britain, 154.
— *salicinus* f. *densus* on oak in Portugal, 92.
— *subroseus* on conifers and *Prunus* in N. America, 215.
— *tamaricis* on *Tamarix anglica* in Portugal, 92.
— *torulosus*, compatibility between strains of, 509.
— — on *Eucalyptus*, oak, and olive in Portugal, 92.
— *ungulatus*, culture of, 93.
Food, preservation of, with antibiotics, 29.
— wastage through pests and diseases, 447.
Forest pathology, list of translations on, 582.
—, policy for, 43.
Formaldehyde injury to cotton, 605; *Petunia*, 554; wheat, 484.
—, use of, against *Botrytis cinerea*, 49; *Corticium solani* on cabbage, cauliflower, and chilli, 216; damping-off of hollyhock, 328; papaw, 501; *Erwinia aroideae* on *Zantedeschia aethiopica*, 17; *Fusarium* on bean and pea, 44; *F. culmorum* on hyacinth, 479; *Gibberella fujikuroi* on rice, 458, 629; *Penicillium digitatum* and *P. italicum* on orange, 603; *Phytophthora* on *Cinchona ledgeriana*, 207; *P. cryptogea* on tomato, 522; *Pseudomonas tabacum* on tobacco, 90; *Pythium debaryanum* on tomato, 540; *Sphacelotheca reiliana* on maize, 324; *Tilletia caries*, 484; *T. foetida*, 228; *Xanthomonas malvacearum* on cotton, 605; as a seed treatment for barley and oats, 427; as a soil disinfectant, 471, 540.
Forsal, use of, against *Oidium begoniae* on *Begonia*, 123.
Fortunella japonica, see *Kumquat*.
Fosfern, use of, against tomato spotted wilt virus, 405.
Fragaria vesca, see Strawberry.
Frankliniella fusca, association of, with *Corticium solani* on cotton in U.S.A., 64.
Fraxinus, see Ash.
Freesia, *Botrytis cinerea*, *Didymellina macrospora*, *Fusarium bulbigenum*, and *Gibberella fujikuroi* on, control, 385.
— mosaic virus on *Freesia* in England and ? Scandinavia, transmission of, by *Myzus convolvuli*, 385.
—, *Sclerotinia gladioli* on, control, 385.
(?) —, *Septoria gladioli* on, in Holland, 385.
Fruit, preservation of fresh, in Britain, 66, 449.
— trees, diseases of, Austrian booklet on, 387; control in Britain, 286.
— —, nutrient deficiencies in, in Italy, 20.
— —, zinc deficiency in, in Germany, 494.
Fuchsia magellanica, lucerne dwarf virus can infect, 168.
Fuclasin, use of, against *Venturia inaequalis*, 534, 564; with insecticides, 502, 534.
Fungi, adaptation in, 196.
—, antagonism between, 29; *Pythium debaryanum* and other, 449.
—, antibiotics from, 196; use of, against, 74, 253.
—, book on various aspects of, 393.
—, carotenoid pigments in, 394.
—, cytology of, 196.
—, endotrophic, in roots of plants, technique for detecting, 623.
—, enzymes from, 623.
—, genetics of, 72, 73.
— in the air in the Arctic, 566; China, 134; Great Britain, 619; India, 567.
— in soil in Germany, 142; control, 350; ecology of, in England, 142; effect of 2,4-D on, 255; technique for examining, 394.
—, list of, in Alaska, 401; Brazil, 33; Chile, 354; England, 256; France, 209; Greece, 256; Holland, 516; India, 409; Japan, 402, 577; New Zealand, 33; the Pacific Northwest, 89; Portugal, 146; S. Africa, 515; Yugoslavia, 353.
—, marine, in Great Britain, 301.
—, metabolism of, 196.
—, moist chamber for culture of, 447.
— on cereal seed, longevity of, 596.
— on cotton textiles, 394; in India, 29.
— on equipment causing deterioration, 29, 135.
— on jute, textile, 570.
— on textiles causing deterioration, 135.
— on timber, stimulation of, by an activator in wood, 93; technique for testing resistance of, to, 263.
—, physiology of, 137.
—, predacious, 552; ecology of, 64.
—, technique for measuring growth rate hyphae in, 619; for preserving, 251.
— Imperfecti, Russian book on, 515.
Fungicides, analyses of Danish, 343.
—, book on, 562.
—, common names for, 562.
—, effect of structure of, on toxicity, 340.
—, field testing of, for vegetable disease control, 341.
—, inactivation of dissolved copper in, 342.
— in agriculture, cost of, 339.
—, list of, 559; in Denmark, 343; New Zealand, 247; U.S.A., 343.
—, new class of organic, 443.
—, organic, toxicity of, to test fungi, 26.
—, —, use of, against *Venturia inaequalis*, 67.
—, particle size of, in relation to efficiency, 132.

[Fungicides], relation of laboratory ED 50 to field performances of, 563.
—, reviews of, development of, in Argentina, 566; England, 447; Holland, 26; Italy, 446, 566.
—, symposium on, in U.S.A., 339.
—, testing of, 25, 71, 549, 563.
Fungocin, toxicity of, to fungi, 395.
Fusarex, composition of, 26.
Fusariol, harmless to man, 501.
—, use of, against *Phoma apiicola*, 444.
Fusarium, antagonism of *Myrothecium verrucaria* to, 448; of, to *Botrytis cinerea*, 270, 271; *Corticium solani*, 270, 271.
—, control, 130.
—, effect of rimocidin on, 395.
— in the air, 504; in India, 567.
— in flour in U.S.A., 345.
— in soil in England, 142; Germany, 296; ecology of, 296.
— on *Acacia* in U.S.S.R., 357.
— on *Acer*, *A. tataricum*, and *Amorpha* in U.S.A., 357.
— on ash, in U.S.S.R., 357.
— on *Asparagus*, control, 224.
— on bamboo and banana in Java, 298.
— on barley in Canada, 597.
— on bean, 265; in U.S.A., 44, 415.
— on beet, 265.
— on celery, 265; in U.S.A., 269; varietal reaction to, 362.
— on cereals in Canada, 597; Japan, 57.
— on citrus in U.S.A., 543.
— on coffee in India, 15.
— on cotton textiles in U.S.A., 606.
— on *Cryptomeria japonica*, control, 153.
— on cucumber in Germany, 314; losses caused by, 315.
— on *Cyamopsis tetragonoloba* in India, 258, 557.
— on dill in U.S.A., 576.
— on *Dimorphotheca annua* in U.S.A., 18.
— on *Dolichos biflorus* and eggplant in India, 258.
— on elm in U.S.S.R., 357.
— on groundnut, control, 340.
— on guava in India, 390.
— on *Hibiscus cannabinus* in U.S.A., 489.
— on lettuce, 265.
— on lucerne in Argentina, 436.
— on maize in Mexico, 373; U.S.A., 602.
— on *Melilotus alba* and *M. officinalis* in Canada, 493.
— on mulberry in U.S.S.R., 357.
— on oats in Canada, 50, 597; Northern Ireland, 593.
— on onion in Java, 298.
— on pea, 265; in Holland, 98; U.S.A., 44; associated with 'St. John's disease', 98; control, 44, 340.
— on peony in U.S.A., 329.
— on *Phaseolus aureus* in India, 258.
— on pine in U.S.A., 307; U.S.S.R., 357; association of, with nematodes, 307.
— on pineapple in India, 258.
— on poplar, 260.
— on potato in Great Britain, 625.
— on raspberry in U.S.A., 561.
— on rice in the Belgian Congo, 422; India, 505.
— on safflower in Canada, 632.
— on tomato, 265, 543; in England, 222.
— on vegetables in Germany, 584.
— on wheat, 177; in Canada, 50, 279, 597; Mexico, 372; U.S.S.R., 130; control, 130; technique for testing varietal reaction to, 279; varietal reaction to, 50.
[*Fusarium*], taxonomy of, 148, 471; Russian book on, 148.
—, 'wild type' in, 258.
— *acuminatum* on cereals in Canada, 597.
— *albedinis* on date palm, geographical distribution of, 160.
— *apii* on celery, varietal reaction to, 4.
— *argillaceum*, antagonism of a bacterium to, 375.
— *arthrosporioides*, antagonism of a bacterium to, 375; of *Penicillium brevi-compactum* to, 621.
— — on cereals in Canada, 597.
— — on conifers in Argentina, 411.
— — on lucerne in Canada, 493.
— — on pine in Argentina, 411.
— — on potato in Great Britain, 625.
— *avenaceum*, antagonism of a bacterium to, 375.
— —, inhibition of, by thiram, 193.
— — on apple in Norway, 244.
— — on conifers in Argentina, 411.
— — on lucerne in Canada, 493.
— — on pine in Argentina, 411.
— — on potato in Great Britain, 625, 626.
— —, taxonomy of, 471.
— — var. *fabae* on broad bean, 458.
— *bulbigenum*, antagonism of a bacterium to, 375.
— — on *Freesia*, control, 385.
— — var. *batatas* on sweet potato, control, 227.
— — var. *blasticola* on conifers and pine in Argentina, 411.
— — var. *lycopersici* on tomato in U.S.A., 290, 462; breeding against, 213, 227; control, 290, 393, 581; cultural study on, 35; factors affecting, 636; inhibition of, by helixin, 620; physiologic races of, 35; physiology of, 450; production of lycopersin by, 450; root injury in relation to, 581; use of, in testing fungicides, 27; varietal reaction to, 36, 213, 227, 260, 334, 462, 542.
— — var. *niveum* on melon in Canada, 473.
— — — — on watermelon in Canada, 473; factors affecting, 418; varietal reaction to, 362.
— *caeruleum* on *Acacia melanoxylon* in India, 465.
— — on *Cyamopsis tetragonoloba* in India, 386.
— — on potato in Germany, 535; Great Britain, 625, 626; control, 294; effect of handling on incidence of, 625; toxicity of albidin to, 198; varietal reaction to, 625, 626.
— *compactum* on cereals in Canada, 597; *F. scirpi* var. *compactum* renamed, 597.
— *conglutinans* on cabbage in U.S.A., 362; breeding against, 312; host range of, 362; varietal reaction to, 312, 541.
— — on radish in U.S.A., 362.
— *culmorum*, antagonism of actinomycetes to, 255.
— —, control, 223, 444.
— — on beet in Great Britain, 415.
— — on flax in Victoria and Western Australia, 117.
— — on garlic in Holland, 478.
— — on hyacinth in Holland, 479.
— — on wheat, 52.
— —, taxonomy of, 471.
— *decemcellulare*, antagonism of a bacterium to, 375.
— *dianthi* on carnation, breeding against, 227; varietal reaction to, 227, 553.
— *dimerum* in soil in Canada, 597.
— *flocciferum*, taxonomy of, 471.

[*Fusarium*] *javanicum*, antagonism of a bacterium to, 375.
— *lateritium* on cereals in Canada, 597.
— — on citrus in India, 183.
— — f. *cajani* on cereals in Canada, 597; *F. lateritium* var. *cajani* renamed, 597.
— — f. *crotalariae* on cereals in Canada, 597; *F. udum* var. *crotalariae* renamed, 597.
— — var. *cajani* renamed *F. lateritium* f. *cajani*, 597.
— *lini* on flax in Argentina, 343; Canada, 52; control, 195, 343; production of fat by, 252; varietal reaction to, 52, 552.
— *merismoides* in soil in Canada, 597.
— (?) *microphlyctis* on olive in Portugal, 500.
— *orthoceras* on conifers in Argentina, 411.
— — on lentils in India, 539.
— — var. *longius* on wheat, 58.
— — var. *pisi* on pea in India, 539; New Zealand, 528.
— *oxysporum*, antagonism of a bacterium to, 375; of *Penicillium brevi-compactum* to, 621.
— —, inhibition of, by *Actinomyces scabies*, 203.
— — on coffee in Costa Rica, 374.
— — on conifers in Argentina, 411.
— — on *Gerbera jamesonii* in Holland, 555.
— — on oil palm in the Belgian Congo, 282.
— — on pine in Canada, 412.
— — on strawberry in U.S.A., 562.
— —, toxicity of fungocin to, 395.
— — f. *bulbigenum* var. *niveum* on watermelon in U.S.A., 166.
— — f. *gladioli* on *Gladiolus* in U.S.A., 119, 542; control, 119, 542; losses caused by, 119; varietal reaction to, 435.
— — f. *pisi*, inhibition of, by helixin, 620.
— — — — on pea in Holland, 471.
— — f. *psidii* on guava in India, 390.
— — var. *cubense* on banana in Ceylon, 132; antagonism of a bacterium to, 375; effect of auxins on growth of, 396; effect of trichothecin on, 135.
— — var. *nicotianae* on tobacco in India, 579; U.S.A., 34.
— — var. *opuntiarum* on *Opuntia ficus-indica* in Sicily, 501.
— — var. *redolens* on cereals in Canada, 597; *F. redolens* renamed, 597.
— *poae* on turf in U.S.A., 331.
— *redolens* renamed *F. oxysporum* var. *redolens*, 597.
— '*roseum*', use of, in testing fungicides, 194.
— *sambucinum*, antagonism of *Penicillium brevi-compactum* to, 621.
— — on wheat, 58.
— — f. 6, *Gibberella cyanogena* perfect state of, 51.
— *scirpi* in soil in Czechoslovakia, 508.
— — var. *acuminatum* on pine in Canada, 412.
— — var. *compactum* renamed *F. compactum*, 597.
— *semitectum* on cereals in Canada, 597.
— — var. *majus*, antagonism of a bacterium to, 375.
— — — — on chilli in the Ivory Coast, 255.
— *solani*, antagonism of *Penicillium brevi-compactum* to, 621.
— —, effect of fungistatic substance from rhizomes of *Orchis militaris* on, 74.
— — on cereals in Canada, 597.
— — on pea, control, 265.
— — on pine in Canada, 412.
— — on potato, varietal reaction to, 540.
— — on strawberry in U.S.A., 562.
[*Fusarium solani*] f. *nicotianae* on tobacco in India, 579.
— — f. *pisi* on pea in Holland, 471.
— — var. *eumartii* on potato in U.S.A., 628.
— — var. *martii*, antagonism of a bacterium to, 375.
— — — — in soil, control, 265.
— — — — on conifers in Argentina, 411.
— *tricinctum* on potato in Great Britain, 625.
— — on wheat, 58.
— *udum*, antagonism of *Bacillus subtilis* to, 540, 609.
— — on pigeon pea, varietal reaction to, 540.
— — var. *crotalariae* on *Crotalaria* in India and U.S.A., 19; renamed *F. lateritium* f. *crotalariae*, 597.
— *vasinfectum*, antagonism of a bacterium to, 375.
— — in soil in the Belgian Congo, 422; India, 258; antagonism of *Trichoderma viride* to, 422.
(?) — — on chilli in Argentina, 343.
— — on conifers in Argentina, 411.
— — on cotton in French Equatorial Africa, 115; India, 594; control, 238; varietal reaction to, 115, 594.
— — on *Hibiscus esculentus* in Puerto Rico, 362.
— —, physiologic properties of, 450.
— —, production of lycopersin by, 450.
Fuscoporia obliqua, *Poria obliqua* renamed, 359.
Fusicladium on poplar in U.S.A., 260.
— *carpophilum* on peach in Peru, 208; control, 72.
— — on plum in Kenya, 173.
— *dendriticum* var. *eriobotryae* on loquat in Yugoslavia, 335.
Fusicoccum persicae on apricot in Portugal, 301.
F.W.P.F.C. dust, use of, against *Tilletia caries* and *T. foetida*, 178.
Fylomax 90, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.

Gaillardia aristata, *Bremia lactucae* on, in England, 256.
Ganoderma in the air, 618.
— *applanatum*, antagonism of, to basidiomycetes, 583.
— —, compatibility between strains of, 509.
— —, culture of, 93.
— — on cottonwood in Canada, 51.
— *lucidum*, compatibility between strains of, 509.
— — on *Acacia melanoxylon* in India, 465.
— — on olive in Greece, 256.
— *pseudoferreum* on cacao in New Guinea, 9.
— — on *Hevea* rubber in Indonesia, 399.
— *resinaceum*, compatibility between strains of, 509.
Gardenia, *Microdiplodia gardeniae* on, in Greece, 186.
Garlic (*Allium sativum*), *Fusarium culmorum* on, in Holland, 478.
— loop-top disease in India, 588.
—, *Puccinia porri* on, control, 563.
6GDN rhodamine, use of, as a fungicide, 27.
Gelasinospora on tomato in England, 222.
Geoglossaceae, taxonomy of, 460.
Geotrichum on mushroom, control, 589.
Geranium molle, filaree red leaf virus on, in U.S.A., 435.
Gerbera jamesoni, *Alternaria porri* on, in U.S.A., 239.
— —, *Fusarium oxysporum*, *Gliocladium penicillioides*, and *Pythium debaryanum* on, in Holland, 555.
Germisan, use of, against damping-off of vege-

tables, 584; as a seed treatment for *Asparagus*, carrot, and parsley, 224; on foodstuffs, 501.
Gibberella on maize in U.S.A., 280.
— *baccata* on cereals in Canada, 597.
— — on *Dimorphotheca barberiae* in England, 17.
— *cyanogena* perfect state of *Fusarium sambucinum* f. 6, 51.
— *fujikuroi* on cacao, 425.
— — on cotton textile, effect of, on hydrogen-ion concentration of fibres, 326.
— — on *Cyamopsis tetragonoloba* in India, 557.
— — on *Derris elliptica* in Java, 86.
— — on *Freesia*, control, 385.
— — on maize in Canada, 52, 60; Rhodesia, 487; S. Africa, 536; breeding against, 370.
— — on rice in India, 629; in Italy, 457; technique for inoculating, 575.
— — on sorghum in S. Africa, 536.
— — on sugar-cane in Java, 298; Mexico, 375.
— —, toxicity of fungocin to, 395.
— — f. *oryzae* on rice in French Equatorial Africa, 457; control, 458.
— — var. *subglutinans* on maize in Rhodesia, 487.
— — — — on sugar-cane in Java, 298.
— *moniliformis*, see *G. fujikuroi*.
— *pulicaris* var. *minor* on cereals in Canada, 597.
— *xylarioides* on coffee in the Belgian Congo, 63; the Ivory Coast, 282; breeding against, 422; control, 64.
— *zeae* on barley in Northern Ireland, 593.
— — on conifers in Argentina, 411.
— — on maize in Canada, 60; Holland, 476; Rhodesia, 487; U.S.A., 61; breeding against, 370; varietal reaction to, 326, 430.
— — on pine in Argentina, 411.
— — on wheat, 58; in (?) Canada, 392; Japan, 548; Tanganyika Territory, 226; (?) U.S.A., 392; control, 392, 549; spore dispersal in, 549.
— —, toxicity of albidin to, 198.
Gibberellulina abietis on *Abies nordmanniana* in Portugal, 146.
Gibellula aranearum on the spider in U.S.A., 116.
Gladiolic acid, effect of, on *Ascochyta pisi*, 528.
Gladiolus, *Alternaria fasciculata* on, in Canada, 17.
—, *Bacterium marginatum* on, in Canada, 54; U.S.A., 119.
—, bean yellow mosaic virus on, in U.S.A., 385, 435.
—, boron deficiency in, in U.S.A., 490.
—, *Botrytis gladiolorum* on, in Denmark, 224; U.S.A., 119, 490; control, 119, 186, 490; losses caused by, 119.
—, copper deficiency in, in U.S.A., 490.
—, *Corynebacterium fascians* on, in Canada, 54.
—, cucumber mosaic virus on, in New Zealand, 319; U.S.A., 273, 385, 435; host range of, 435.
—, *Curvularia lunata* on, in U.S.A., 490.
— fluorine scorch in U.S.A., control, 554.
—, *Fusarium oxysporum* f. *gladioli* on, in U.S.A., 119, 542; control, 119, 542; losses caused by, 119; varietal reaction to, 435.
—, iron deficiency in, in U.S.A., 490.
—, manganese deficiency in, in U.S.A., 490.
— mosaic virus in U.S.A., 120.
—, pea mosaic virus on, in New Zealand, 319.
—, *Pleospora* on, in U.S.A., 283; stomatal droplets in relation to, 283.
—, ? — *herbarum* on, in U.S.A., 239.
—, potassium deficiency in, in U.S.A., 490.
[*Gladiolus*], *Sclerotinia draytoni* on, technique for staining, 553.
—, — *gladioli* on, in U.S.A., 119.
—, tobacco ring spot virus on, in Canada, 54; U.S.A., 385, 435; host range of, 435.
—, *Urocystis gladiolicola* on, in U.S.A., 119.
— *segetum*, *Puccinia gladioli* on, in Palestine, 146.
Glass fibre, use of, in examining soil fungi, 394.
Gliocladium in the air, 504.
— in soil in England, 142.
— *penicillioides* on *Gerbera jamesonii* in Holland, 555.
— *roseum*, antagonism of *Penicillium brevi-compactum* to, 621.
— — in soil in England, 569; production of antibiotics by, 569.
— — insensitive to ustilagic acid, 448.
Gliomastix in soil in England, 142.
Gliorosein, effect of, on *Botrytis allii*, 569; production of, by *Gliocladium roseum*, 569.
Gliotoxin, effect of, on *Ascochyta pisi*, 528; *Pythium debaryanum* and *P. ultimum*, 449.
—, production of, by *Trichoderma viride*, 449.
Gloeocercospora sorghi on sorghum in India, 55.
— — on turf in U.S.A., 330, 331.
Gloeodes pomigena on apple in Denmark, 560; control, 72, 560.
Gloeosporium on cacao in New Guinea, 9.
— on *Camellia* in U.S.A., 541.
— *albo-rubrum* on *Hevea* rubber in Indo-China, 206.
— *album* on apple in Denmark, 66, 560; Norway, 244.
— *anthocephali* on *Anthocephalus cadamba* in India, 410.
— *caballeroi* on *Manihot palmata* in Spain, 577.
— *laeticolor* on nectarine in Japan, 128.
— — on peach in Japan, 128.
— *mangiferae* on mango in India, 71.
— *olivarum* on olive in Portugal, 500.
— *pedemontanum* on lemon in Italy, 487.
— *theae-sinensis* on tea in Japan, 258.
Glomerella, heterothallism and homothallism in, 72.
— on *Vanda* in U.S.A., 186.
— *cingulata*, inhibition of, by fungocin, 395; helixin, 620.
— on apple in Denmark, 560; Norway, 244; Southern Rhodesia, 475; control, 72, 475, 560.
— — on coffee in Costa Rica, 374; Kenya, 173.
— — on mango in French Guinea and the Ivory Coast, 443.
— — on orange in Assam, 370; Peru, 208.
— — on tomato in U.S.A., 36.
— *glycines* on soy-bean, 458.
— *gossypii* on cotton in French Equatorial Africa, 115.
— — on cotton textiles in U.S.A., 606.
Glues, effect of timber preservatives on, 584.
Glycine max, see Soy-bean.
Glyoxalidine, use of, against *Podosphaera leucotricha*, 290; *Venturia inaequalis*, 67, 290, 611.
— 341–C, use of, against *Venturia inaequalis*, 189, 341; *V. pirina*, 189.
Glyphaea laterifolia, *Calonectria rigidiuscula* can infect, 232.
Gnomonia synonym of *Plagiostoma*, 89.
— *fructicola* on strawberry in Canada, 443; *G. fragariae* var. *fructicola* renamed, 443.
— *leptostyla* on walnut in Holland, 477; Yugoslavia, 353.
— *platani*, *G. quercina*, *G. tiliae*, and *G. veneta* synonyms of *Apiognomonia errabunda*, 89.

[*Gnomonia platani*] on *Platanus* in France, 638; Germany, 408.
Gnomoniella quadriguttulata on coffee in the Ivory Coast, 282.
Godetia grandiflora, lucerne dwarf virus can infect, 168.
— *hybrida*, *Centrospora acerina* can infect, 269.
Gomphrena globosa, bean yellow dot virus can infect, 266.
— —, potato virus X on, 138, 452.
— —, tobacco ring spot virus on, 138.
Gonytrichum, taxonomy of, 301.
— *caesium* imperfect state of *Melanopsamella inaequalis*, 301.
— *macrocladum*, synonymy of, 301.
Gooseberry (*Ribes grossularia*), 'giant gooseberry' virus on, in England, 171.
—, *Phytophthora cactorum* on, in New Zealand, 20.
—, *Pseudopeziza ribis* on, in Denmark, 172; Holland, 478.
—, *Puccinia pringsheimiana* on, in Holland, 477.
—, *Sphaerotheca mors-uvae* on, in England, 246; Holland, 477; Norway, 559; U.S.A., 24; U.S.S.R., 129; control, 24, 129, 559; varietal reaction to, 130.
Gorse (*Ulex*), *Fomes ribis* f. *ulicis* on, in Portugal, 93.
Gossypium, see Cotton.
Granosan, use of, against *Ophiobolus miyabeanus* on rice, 372; *Sphacelotheca sorghi* on sorghum, 373.
— 1 and 5, use of, against damping-off of lucerne, 436.
Grapefruit (*Citrus paradisi*), gummosis of in U.S.A., 237.
—, *Phytophthora citrophthora* and *P. hibernalis* on, control, 563.
—, — *parasitica* on, in Venezuela, 380; control, 380, 563.
—, *Septobasidium pseudopedicellatum* on, in India, 182.
— stem-pitting in Argentina, 182; S. Africa, 62; relationship between citrus tristeza disease, lime disease in the Gold Coast, and, 62.
—, toxicity of lithium to, 114.
—, *Xanthomonas citri* on, in Fiji, 551.
— xyloporosis in U.S.A., 282.
Graphiola phoenicis on date palm in Somaliland, 33.
Graphocephala coccinea in relation to *Pycnostysanus azaleae* on *Rhododendron*, 240.
Grasses, *Corticium fuciforme* on, in Holland, 476.
—, endotrophic fungi in roots of, 623.
—, fungi on, in Finland, 556.
—, *Helicosporium phragmitis* on, in England, conidial state of *Tubeufia helicomyces*, 89.
—, *Microthyrium culmigenum* on, in Great Britain, 89.
—, *Ophiobolus graminis* on, in S. Australia, 429; role of, in wheat infection, 548.
—, *Physarum* on, in S. Australia, 344.
—, see also under hosts.
Greengage (*Prunus domestica* var. *italica*), plum mosaic virus on, in New Zealand, 336; host range of, 336; transmission of, by budding, 336.
Greensalt, use of, as a timber preservative, 2.
Grey speck, see Manganese deficiency.
Griphosphaeria corticola on rose in S. Africa, 552.
Grisard, use of, against *Venturia inaequalis*, 67.
Groundnut (*Arachis hypogaea*), *Aspergillus niger* on, in India, 589; Tanganyika Territory, 47, 320.
[Groundnut], *Botrytis* on, in S. Africa, 536.
—, *Cercospora arachidicola* on, 274; in Brazil, 532; Indonesia, 101; Tanganyika Territory, 47; varietal reaction to, 421.
—, — *personata* on, 274; in Brazil, 532; El Salvador, 302; Indonesia, 101; control, 101, 563; varietal reaction to, 421.
—, chlorosis, lime-induced of, in U.S.A., 141.
—, effect of fungicides on, 532.
—, *Fusarium* on, control, 340.
—, *Pythium* on, control, 340.
—, *Rhizoctonia* on, control, 340.
— rosette virus in Argentina, may be due to tomato spotted wilt, 46; E. Africa, 421; Tanganyika Territory, 7, 47, 315, 320; control, 7, 47, 315; effect of, on yield, 315; electromicrographs of, 169; survival of, 7; transmission of, by *Aphis craccivora*, 7, 47, 315; mechanically, 169.
—, *Sclerotium rolfsii* on, in Tanganyika Territory, 47; control, 421.
—, *Sphaceloma arachidis* on, geographical distribution of, 160.
—, tomato spotted wilt virus on, in Brazil, 46; rosette may be due to, 46.
— witches' broom disease in Java, 165.
Guanazolo, effect of, on lucerne mosaic virus and tobacco mosaic virus, 318.
Guanine, effect of, on inhibitory activity of guanazolo, 318.
Guar, see *Cyamopsis tetragonoloba*.
Guava (*Psidium guajava*), *Cephalosporium*, *Fusarium*, *F. oxysporum* f. *psidii*, and *Pestalotia psidii* on, in India, 390.
—, *Puccinia psidii* on, in Brazil, 391.
—, *Sclerotium delphinii* can infect, 554.
—, (?) virus disease of, in India, 54.
Guignardia bidwellii, effect of, on plant viruses, 369.
— — on vine in U.S.A., 275.
— *camelliae* on tea in Japan, 258.
Gums, moulds and yeasts in, control, 505.
Gymnoconia interstitialis on blackberry in U.S.A., 24; varietal reaction to, 24, 333.
— — on boysenberry, resistance to, 24.
— — on loganberry in U.S.A., 24.
Gymnopuccinia pulneyensis on *Toddalia asiatica* in India, 88.
Gymnosporangium clavariiforme on *Crataegus azarolus* in Palestine, 146.
— — on *Juniperus communis* in Holland, 478.
— *confusum* on quince in Yugoslavia, 353.
— *juniperi-virginianae*, culture of, on synthetic media, 508.
— *sabinae* on *Juniperus communis* ssp. *nana* and *J. oxycedrus* in Turkey, 191.
— — on pear in Holland, 477; Turkey, 191; Yugoslavia, 353.
— *tremelloides* on apple in Norway, 244, 559.

Halophiobolus opacus on rope in Wales, 301.
Hansenula, taxonomy of, 354.
— *angusta* in orange juice, 354.
— *capsulata* in insect tunnels in pine and spruce, 354.
— *mrakii* in soil, 354.
Hardwoods, *Polyporus licnoides* on, in N. America, 637.
Harposporium oxycoracum on nematodes in Great Britain, 16.
Hawthorn, see *Crataegus*.
Hedera helix, see Ivy.

Helianthus annuus, see Sunflower.
Helichrysum, Chrysanthemum mosaic virus can infect, 239.
Helicobasidium compactum on *Hevea* rubber in Indonesia, 399.
— *mompa* can infect soy-bean and sweet potato, 546.
— — on maize, (?) *Panicum miliaceum*, rice, and wheat, immunity from, 546.
— *purpureum* on beet in Great Britain, 415.
— — on *Levisticum officinale* in Holland, 478.
— — on lucerne, *Medicago*, and potato in S. Africa, 460.
Helicoceras oryzae on rice in Indo-China, 628.
Helicoma echinosporium on rice in Japan, 528.
— *maritimum* and *H. salinum* on rope in Wales, 301.
Helicosporium phragmitis on cereals and grasses in England, 89; conidial state of *Tubeufia helicomyces*, 89.
Helione A, use of, against *Botrytis fabae* on broad bean, 445.
Helixin, inhibition of fungi by, 620.
—, tests of, for plant disease control, 620.
Helleborus niger, Peronospora pulveracea on, in Holland, 123.
Helminthopeltis almeidaeana on *Juniperus sibirica* in Portugal, 146.
Helminthosporium, 135.
— in the air in Canada, 28; India, 567.
— in flour in U.S.A., 345.
— in roots of plants, 623.
— on *Hevea* rubber in Indonesia, 400.
— on oats in Canada, 50.
— on oil palm in Malaya, 538.
— on sorghum in S. Africa, 536.
— on turf in U.S.A., 330.
— on wheat in Canada, 50; Mexico, 372.
— *carbonum* on maize, location of genes resistant to, 380.
— *cynodontis* on turf in U.S.A., 330.
— *dictyoides* on *Festuca elatior* var. *arundinacea*, varietal reaction to, 422.
— — on turf in U.S.A., 330.
— *erythrospilum* on turf in U.S.A., 330.
— *giganteum* on *Cynodon dactylon*, breeding against, 124.
— — on turf in U.S.A., 330.
— *gramineum* on barley in Mexico, 372; Sweden, 108; U.S.A., 178.
— — on wheat, 58.
— *heveae* on *Hevea* rubber in the Belgian Congo, 422.
— *iranicum* on *Indigofera* in Persia, 354.
— *papaveris* imperfect state of *Pleospora papaveracea*, 85, 257.
— *sacchari*, antagonism of *Bacillus subtilis* to, 515.
— — on sugar-cane in Argentina, 515; Jamaica, 8.
— *sativum, Cochliobolus sativus* perfect state of, 50, 179.
— —, inhibition of, by helixin, 620; by ustilagic acid, 448.
— — in the air in Canada, 28.
— — on barley in Canada, 596; breeding against, 485.
— — on wheat in Canada, 50, 52, 279, 596; U.S.A., 179; antagonism of bacteria to, 52; *Cochliobolus sativus* perfect state of, 50; control, 50, 545; effect of 2,4-D on, 179; longevity of, 596; technique for testing varietal reaction to, 279; varietal reaction to, 596.
— *stenacrum* on turf in U.S.A., 330.
[*Helminthosporium*] *teres* imperfect state of *Pleospora trichostoma*, 89.
— — on barley in Canada, 596.
— *triseptatum* on turf in U.S.A., 330.
— *tritici-vulgaris* on wheat in U.S.A., 323.
— *turcicum* on maize in S. Africa, 536; U.S.A., 13, 61, 280, 325, 542, 550; breeding against, 550, 551; control, 13, 236; factors affecting, 236, 542; genetics of, 550, 551; leaves as sources of infection, 325; varietal reaction to, 236, 280, 542, 550.
— *vagans* on *Poa* in U.S.A., 331.
— — on *Poa pratensis* in U.S.A., 285; varietal reaction to, 285, 557.
— — on turf in U.S.A., 330, 331; control, 331.
— *victoriae*, inhibition of, by helixin, 620.
— — on oats in Canada, 50, 52; U.S.A., 180, 235, 379; varietal reaction to, 50, 52, 113, 180, 549.
— *vignicola* on soy-bean in U.S.A., 416.
Helopeltis in relation to *Exobasidium vexans*, 210.
Helotium, taxonomy of, 461.
Hemidothis rubi synonym of *Rhabdospora ramealis*, 561.
Hemileia buntingii on *Strophanthus hispidus* in the Gold Coast and Uganda, 633.
— *mandevillae* on *Mandevilla* in Kenya, 402.
— *smallii* on *Strophanthus sarmentosus* in French Equatorial Africa, 633.
— *strophanthi* on *Strophanthus dichotomus* in Java, 633.
— — on *Strophanthus hispidus* in Uganda, 633.
— — on *Strophanthus sarmentosus* in the Ivory Coast, 633.
— *vastatrix* on coffee in Ceylon, 605; Ethiopia, 33; India, 15; risk of introduction of, into America, 605.
Hemp (*Cannabis sativa*), *Botryosphaeria marconii, Botrytis, Pseudomonas mori, Pseudoperonospora cannabina*, and *Sclerotinia sclerotiorum* on, in Italy, 184.
Hendersonia aberrans on wheat, 58.
— *asteris* on *Aster acer* in France, 209.
2-heptadecylglyoxalidine, technique for determining spray residue of, on apple and cherry, 133.
—, use of, against *Venturia inaequalis*, 290.
2-heptadecyl-4, 4, 6-trimethyltetrahydropyrimidine, use of, against *Phytophthora infestans* on tomato and *Septoria apii-graveolentis* on celery, 444.
Herbarium, mycological, establishment of, in Honduras, 375.
Herpotrichia nigra on spruce in Switzerland, 360.
Heteroauxin, effect of, on *Nectria galligena*, 126; sunflower, 321.
Heterodera gottingiana on pea in relation to 'St. John's disease' in Holland, 98.
Heterosporium in roots of plants, 623.
— *eschscholtziae* on *Eschscholtzia* in Mauritius, 538.
— — on *Eschscholtzia californica* in U.S.A., 122.
(?) — *graminum* on wheat in Greece, 235.
— *tropaeoli* on *Tropaeolum* in Mauritius, 538.
Heterothallism, definition of, 617.
Hevea brasiliensis, see Rubber.
— *guianensis* var. *lutea, Corticium solani* on, in Peru, 458.
Hexachlorobenzene, use of, against *Tilletia caries*, 26, 110, 597; *T. foetida*, 26.
Hexamine, use of, with dowicide A, 543.
Hexason 2540 M, use of, against tomato spotted wilt virus, 405.

Hibiscus cannabinus, *Aecidium garckeanum* on, in S. Africa, 184.
— —, *Ascochyta* on, in U.S.A., 489.
— —, *Colletotrichum hibisci* on, in U.S.A., 489.
— —, *Corticium solani* on, in Japan, 154.
— —, *Fusarium* on, in U.S.A., 489.
— —, *Leveillula taurica* f. *hibisci* on, in U.S.A., 384.
— —, *Macrophomina phaseoli* and *Rhizoctonia* on, in U.S.A., 489.
— —, virus disease of, in U.S.A., 489.
— *esculentus*, *Ascochyta abelmoschi* on, comparison of, with *A. phaseolorum*, 366.
— —, *Fusarium vasinfectum* on, in Puerto Rico, 362.
— — leaf curl virus in India, 541.
— — yellow vein mosaic virus in India, 6; control, 6; *Hibiscus* virus 1 and *Ochrovena hibiscae* names for, 6; losses caused by, 6; transmission of, by *Bemisia tabaci* and grafting, 6; to *Althaea rosea* and *Hibiscus* spp., 6.
— *rosa-sinensis* leaf curl virus in India, 541.
— —, *Phytophthora cactorum* var. *applanatum* and *P. palmivora* on, in U.S.A., 434.
— *sabdariffa*, *Aecidium garckeanum* on, in S. Africa, 184.
— *schizopetalus*, *Phytophthora cactorum* var. *applanata* and *P. palmivora* on, in U.S.A., 434.
— *tetraphyllus*, *Hibiscus esculentus* yellow vein mosaic virus on, in India, 6.
— virus 1, name proposed for *Hibiscus esculentus* yellow vein mosaic virus, 6.
Hieracium pilosella, effect of root excretions of, on rhizosphere microflora, 199.
Hippeastrum mosaic virus in the Philippines, 119.
Hippodamia, *Beauveria* on, in the Pacific Northwest, 116.
Hippophae rhamnoides, root nodules in, 36.
Hirschioporus laricinus in Japan, 353; *Lenzites laricina* renamed, 353.
Hirsutella, 283.
— *stylophora* on beetle larvae in U.S.A., 283; imperfect state of *Cordyceps stylophora*, 283.
Holcus mollis, *Microthyrium culmigenum* on, in Great Britain, 89.
Hollyhock (*Althaea*), *Acrothecium*, *Alternaria*, and *Corticium solani* on, in India, 328.
—, *Hibiscus esculentus* yellow vein mosaic virus can infect, 6.
—, *Macrophomina phaseoli* and *Pythium debaryanum* on, in India, 328.
Homothallism, definition of, 617.
Honesty, see *Lunaria annua*.
Honeysuckle (*Lonicera*), cucumber mosaic virus on, in Sweden, 417.
—, lucerne dwarf virus can infect, 168.
Hops (*Humulus*) cankers in U.S.A., 32.
—, *Corticium solani* on, in Canada, 633.
— mosaic virus and nettlehead virus in England, 143, 350.
—, *Phytophthora cactorum* on, in New Zealand, 20.
—, *Pseudoperonospora humuli* on, in Canada, 206; England, 143.
—, *Pythium intermedium* on, 623.
—, *Sphaerotheca humuli* on, in U.S.S.R., 129; Yugoslavia, 354.
— split leaf blotch disease in England, 84, 143, 350.
—, *Verticillium albo-atrum* on, in England, 85, 143, 350; breeding against, 350.
Hordeum, (?) wheat mosaic virus on, in U.S.A., 177.
— *murinum*, lucerne dwarf virus can infect, 168.
[*Hordeum murinum*] and *H. sativum*, *Puccinia graminis* on, in Palestine, 146.
— *vulgare*, see Barley.
Hordnia circellata transmitting lucerne dwarf virus, 168.
Hormiscium gelatinosum on timber, control, 154.
Hormodendrum, in flour in U.S.A., 345.
—, stimulation of, by wood, 93.
Hormotan, use of, as a seed treatment for barley and oats, 108.
Hornbeam (*Carpinus betulus*), *Plagiostoma rehmii* on, 89.
Horse-radish (*Cochlearia armoracia*), *Cystopus candidus* on, breeding against, 466.
—, *Ramularia armoraciae* on, geographical distribution of, 160.
Hot-water seed treatment, 313; against *Alternaria zinniae* on *Zinnia elegans*, 239; *Colletotrichum fuscum* on *Digitalis*, 256; *C. multisetorum*, 165; *Heterosporium eschscholtziae* on *Eschscholtzia californica*, 122; *Phoma lingam* on cabbage, 414; sugar-cane chlorotic streak, 145, 300; sugar-cane ratoon stunting disease, 352; *Ustilago nuda* on barley, 52, 59, 600; *U. tritici*, 59, 111, 483.
Humicola fusco-atra and *H. grisea* on cotton textiles, 296.
Humulon, effect of, on *Ascochyta pisi*, 528.
Humulus, see Hops.
Hyacinth (*Hyacinthus*), *Fusarium culmorum* on, in Holland, 479.
Hyalastinus obscurus, *Beauveria bassiana* on, in the Pacific Northwest, 116.
Hydnum septentrionale on *Acer* in Canada, 51.
Hydrangea opuloides, effect of factory gases on, 571.
Hydrogen-ion concentration in relation to cucumber green-mottle mosaic virus, 420; micro-organisms on cotton fibres, 326; tomato blossom-end rot, 214.
— — of soil, effect of, on *Actinomyces scabies*, 319; on *Phagus pruni*, 423.
— — — in relation to *Actinomyces*, 140; *Phytophthora fragariae*, 23; *Plasmodiophora brassicae* on *Brassica*, 216; molybdenum deficiency in lettuce, 417.
Hydroquinoline, toxicity of, to *Sclerotinia fructicola* and *Stemphylium sarciniforme*, 340.
Hydroxymercurichlorophenol, use of, against *Sclerotinia homoeocarpa* on *Agrostis palustris*, 331.
Hydroxymercuricresol, use of, against *Sclerotinia homoeocarpa* on *Agrostis palustris*, 331.
Hydroxymercurinitrophenol, effect of, on fungi, 412.
Hydroxymercurisalicylic acid anhydride, use of, against moulds on electronic equipment, 346.
2-hydroxy, 4-methylquinoline, effect of, on *Alternaria solani* and *Botrytis fabae*, 445.
8-hydroxyquinoline, effect of, on *Aspergillus niger*, 445; on fungi, 412.
— benzoate, succinate, sulphate, 5-sulphuric acid, effect of, on *Alternaria solani* and *Botrytis fabae* bean, 445.
Hymenochaete in S. Africa, 460.
Hymenomycetes in S. Africa, 460.
—, physiology of, 30.
—, sexuality in, 503.
Hymenopodium sarcopodioides synonym of *Clasterosporium caricinum*, 301.
Hyoscyamus niger mosaic virus, 170; electromicrographs of, 169; transmission of, by aphids, 169.

Hypera nigrirostris and *H. punctata*, *Beauveria* on, in the Pacific Northwest, 116.
Hyperomyzus staphyleae transmitting beet virus yellows, 159.
Hypholoma subatrata, production of drosophilin by, 622.
Hypochaeris radiata, lucerne witches' broom virus can infect, 125.
Hypocrella reineckiana on scale insects in Ceylon, 205.
Hypoderma mexicanum on pine in Mexico, 215.
Hypomyces haematococcus var. *breviconus* on coffee in the Ivory Coast, 282.
— *solani* on cereals in Canada, 597.
Hypoxanthine, effect of, on the virus-inhibitory activity of guanazolo, 318.
Hypoxylon mediterraneum on *Eucalyptus* in Morocco, 409.
— — on oak in Morocco, 409; *Botrytis sylvatica* conidial state of, 409.
— *pruinatum* on aspen in U.S.A., 39.

Ialine injury to tea, 517.
— and ialine white disinfectant, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Iberis umbellata, *Alternaria brassicicola* on, in Denmark, 224.
Ilman lahosuoj, use of, as a timber preservative, 584.
Imidazoline, use of, against *Coccomyces hiemalis* on cherry, 392.
Indigofera, *Helminthosporium iranicum* on, in Persia, 354.
Indole, toxicity of, to *Sclerotinia fructicola* and *Stemphylium sarciniforme*, 340.
Indoleacetic acid, effect of, on *Bacterium tumefaciens*, 106; *Puccinia coronata*, 179.
Indolebutyric acid, effect of, on tobacco mosaic virus, 221.
Infra-red radiation, effect of, on *Corynebacterium sepedonicum*, 53; *Endothia parasitica*, 261.
Inocybe geophylla, antibiotic effect of, on bacteria, 569.
Inyecetanzol, use of, against *Phytophthora cinnamomi* on chestnut, 40.
Iodine, use of, against *Bacterium tumefaciens* on peach and *Tagetes patula*, 481.
Ipomoea batatas, see Sweet potato.
— *pulchella*, *Pythium aphanidermatum* on, in India, 492.
Ips acuminatus (?) associated with *Ceratostomella pini*, 42; *Ophiostoma clavatum*, 42.
— *typographus* associated with *Ceratostomella penicillata* and *Ophiostoma polonicum*, 42.
Iris, *Sclerotium delphinii* on, in Holland, 479.
Iron carbamate, use of, against *Venturia inaequalis*, 67.
Iron deficiency in citrus in India, 541; *Gladiolus* in U.S.A., 490; peach in Italy, 191; *Phleum pratense*, 188; *Vaccinium* in U.S.A., 25.
— oxide, use of, against iron deficiency in *Vaccinium*, 25.
— sulphate, use of, against *Elsinoe ampelina* on vine, 316; *Phomopsis diospyri* on persimmon, 23; powdery mildews, 248; *Pseudomonas tabacum* on tobacco, 90.
Isariopsis griseola on bean in New S. Wales and Queensland, 3; Sierra Leone, 476; Tanganyika Territory, 162; Victoria, 3; losses caused by, 3; varietal reaction to, 3.
— — on *Phaseolus lunatus*, 3.
Iscobromes 1 and 2, use of, against *Sphacelotheca reiliana* on maize, 324.
Iscothan, use of, against *Oidium begoniae* on *Begonia*, 434.
Isopyrum fumarioides, *Puccinia triticina* on, 376.
Isothan Q 15, use of, against *Sclerotinia fructicola* on apricot, 335.
Itersonilia on parsnip in U.S.A., 416.
Ivy (*Hedera*), lucerne dwarf virus can infect, 168.
—, *Tuburcinia hederae* on, in Portugal, 146.
Izal, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.

Johnson grass, see *Sorghum halepense*.
Juglans, see Walnut.
Juniperus communis, *Gymnosporangium clavariiforme* on, in Holland, 478.
— — ssp. *nana* and *J. oxycedrus*, *Gymnosporangium sabinae* on, in Turkey, 191.
— *sabina*, *Pithya cupressi* on, in Holland, 478.
— *sibirica*, *Helminthopeltis almeidaeana* on, in Portugal, 146.
Jute (*Corchorus capsularis* and *C. olitorius*) textile, fungi on, 570.

Kabatiella caulivora on clover, varietal reaction to, 125, 386.
— *phoradendri*, *Protocoronospora phoradendri* renamed, 38.
— — f. *umbellulariae* on *Umbellularia californica* in U.S.A., 38.
Kalanchoe, *Bacterium tumefaciens* can infect, 321, 423.
Kale (*Brassica oleracea* var. *acephala*), *Alternaria brassicicola* on, in Denmark, 224.
—, *Fusarium conglutinans* can infect, 362.
—, nickel injury to, in Scotland, 631.
Kankerdood, use of, against *Nectria galligena* on apple, 559.
Kapok, see *Ceiba pentandra*.
Karlingia rosea in soil in Germany, 142.
Kentia, *Pythium intermedium* on, 623.
Keonolla confluens transmitting peach western X-disease virus, 22.
Kerosene, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
KF 467, use of, against (?) *Gibberella zeae* on wheat, 392; *Helminthosporium gramineum* on barley, 178; *Sphacelotheca sorghi* on sorghum, 181; *Tilletia caries* and *T. foetida*, 178, 392; *Ustilago avenae* on oats, 178, 392; *U. hordei* on barley, 392; *U. kolleri* on oats, 178, 392; *U. nigra* on barley, 392; as a seed treatment for beet, 391; flax, 392; maize, pea, *Phaseolus lunatus*, and spinach, 391.
Khaya grandiflora, *Calonectria rigidiuscula* can infect, 232.
Killgerm, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Kohlrabi (*Brassica oleracea* var. *caulo-rapa*), *Alternaria brassicicola* on, in Denmark, 224.
—, turnip mosaic virus on, in Germany, 369; transmission of, by *Myzus circumflexus* and *Rhopalomyzus ascalonicus*, 369.
Kola (*Cola acuminata*), *Calonectria rigidiuscula* can infect, 232.
Kolofog, use of, against *Podosphaera leucotricha* and *Venturia pirina*, 242.
Koneprox, use of, against *Phytophthora infestans* on potato, 80.
Koperkalk Wieko, use of, against *Colletotrichum derridis*, 86; *Phytophthora infestans*, 81.
Kryptox, use of, against *Venturia inaequalis*, 67.
Kuehneola fici on fig in Somaliland, 33.

Kumquat (*Fortunella japonica*) exocortis in Argentina, 382.
— stem-pitting in Argentina, 182.
Kweilingia bambusae on bamboo in China, 401.

Laboulbenia bembidio-palpi, L. odobena, L. perpendicularis, L. tapirina, L. truncata, and *L. vulgaris* on *Bembidion picipes* in U.S.A., 283.
Labrella coryli on *Corylus americana* × *C. avellana* in U.S.A., 214.
Lachnella, Dasyscypha a synonym of, 461.
— *hahniana, Dasyscypha calycina* renamed, 461.
Lacquer, moulds in, control of, 396.
Lactuca sativa and *L. scariola,* see Lettuce.
Ladogal, effect of, on cereal rusts, 176.
Laelia anceps, virus disease of, in U.S.A., 491.
Laeliacattleya, Cattleya virus can infect, 490.
Laestadia synonym of *Plagiostoma,* 89.
Lagenaria leucantha, cucumber green-mottle mosaic virus on, in India, 420, 531; inactivation of, by some plant extracts, 531; transmission of, to *Solanum nigrum, S. nodiflorum,* and tobacco, 531.
Lahotuho-K 33, use of, as a timber preservative, 584.
Lambertella pruni, effect of, on plant viruses, 369.
Larch (*Larix*), *Botrytis cinerea* on, 582.
—, *Corticium solani* on, in Japan, 153.
—, *Fomes annosus* on, in England, 262; Norway, 92.
—, *Meria laricis* on, in England, control, 91.
—, *Phomopsis pseudotsugae* on, in Holland, 360.
—, *Sclerotinia kitajimana* can infect, 582.
—, *Trichoscyphella wilkommii* on, in Holland, 516.
Larvacide, use of, against *Phytophthora* on *Cinchona ledgeriana,* 207.
Lathyrus odoratus, see Sweet Pea.
— *sativus,* lettuce mosaic virus can infect, 368.
Lauryl isoquinolinium bromide, use of, against *Xanthomonas phaseoli* on bean, 469.
Lavandula stoechas, Leptosphaeria lavandulae on, in Portugal, 301.
Lavender (*Lavandula*), *Septoria lavandulae* on, in France, 209.
Lawsonia inermis, Xanthomonas lawsoniae on, in India, 479.
Lead arsenate, effect of, on adhesiveness of fungicides, 534.
—, —, use of, against *Venturia inaequalis,* 190.
Leather, *Aspergillus niger, A. repens, A. terreus, Paecilomyces, Penicillium frequentans,* and *P. rugulosum* on, in England, 75.
—, *Penicillium spiculisporum* on, 208; in England, 75.
—, — *wortmanni* on, in England, 75.
Lecythophora, culture of, 93.
Leek (*Allium porrum*), manganese deficiency in, in France, 95.
Legislation against plant diseases in Brazil, 350; Denmark, 109; Finland, 234; Germany, 421; Queensland, 299; U.S.A., 228; Yugoslavia, 638.
Leguminosae, *Colletotrichum lindemuthianum* on, in Puerto Rico, 362.
Lemon (*Citrus limonia*), citrus psorosis virus on, in U.S.A., 432.
— collapse in U.S.A., 432; difference between orange quick decline and, 432.
—, *Deuterophoma tracheiphila* on, 604.
— exocortis in Argentina, 382.
—, *Gloeosporium pedemontanum* on, in Italy, 487.
—, lithium toxicity to, 114.
—, *Penicillium digitatum* and *P. italicum* on, in Israel, 603.
[Lemon], *Peyronellaea prunicola* on, in Italy, 487.
—, phosphorus deficiency in, in U.S.A., 62.
—, *Phytophthora parasitica* on, in Venezuela, 380.
—, — *syringae* on, in Greece, 256.
—, *Pseudomonas syringae* on, in Italy, 183; U.S.S.R., 622.
—, *Septobasidium pseudopedicellatum* on, in India, 182.
—, *Septoria* on, in Brazil, 551.
—, — *limonum* on, in Italy, 487.
— stem-pitting in Argentina, 182.
— tristeza disease in Brazil, 62.
—, *Xanthomonas citri* on, in Fiji, 551.
— xyloporosis in U.S.A., 282.
Lentils (*Lens esculenta*), *Fusarium orthoceras* on, in India, 539.
—, pea enation mosaic virus on, in Germany, 313.
Lentinus lepideus, culture of, 93.
— — on oak, 409.
— — on timber, 526; in Finland, 155; Great Britain, 154; Sweden, 414, 526; control, 155, 156, 215, 465, 584.
— — on wood pulp in Finland, 155.
— —, physiology of, 413.
— *subnudus* on timber in India, 95.
Lenzites abietina on timber, control, 263, 584.
— *betulina,* compatibility between strains of, 509.
— *laricina* renamed *Hirschioporus laricinus,* 353.
— *sepiaria* on oak, 409.
— — on pine in N. America, 637.
— — on spruce in Alaska, 401.
— — on timber, 526; in Europe, 154; Finland, 155; Great Britain, 154; India, 311; N. America, 637; Sweden, 414, 526.
— — on wood pulp in Finland, 155.
— *striata* on timber in India, 95.
— *trabea* on timber in Portugal, 92; control, 154, 156, 361.
Leonurus cardiaca, cucumber mosaic virus on, in U.S.A., 273.
Lepidium sativum, Plasmodiophora brassicae on, in Germany, 527.
— —, turnip mosaic virus can infect, 363.
Lepidoptera, *Aspergillus flavus* on, 116.
Lepidosaphes beckii, Septobasidium lepidosaphis on, in Jamaica, 8.
— —, *Sphaerostilbe aurantiicola* on, in India, 634.
Lepiota cepaestipes, antagonism of, to basidiomycetes, 583.
Leptographium on pine, pathogenicity of, 306.
Leptosphaeria in Sweden, taxonomy of, 402.
— *avenaria* on cereals in Switzerland, 533.
— *clavata* on wheat, 58.
— *coniothyrium* on raspberry in Germany, 444.
— — on rose in S. Africa, 552.
— *eustoma* on *Abutilon striatum* in France, 606.
— *eustomoides* on wheat, 58.
— *lavandulae* on *Lavandula stoechas* in Portugal, 301.
— *linearis* on wheat, 58.
— *maydis* on maize in French Equatorial Africa, 281.
— *nigrans* on wheat, 58.
— *recutita* on wheat, 58.
— *sacchari* on sugar-cane in Mexico, 375.
— *tritici* on cereals in Switzerland, 533.
— *variiseptata, L. zeae, L. zeae-maydis,* and *L. zeicola* on maize in French Equatorial Africa, 280–1.
Leptothyrium on spruce in Holland, 152, 637.
— *pomi* on apple in Norway, 244.

[*Leptothyrium*] *theae* on tea in Ceylon, 211.
Lespedeza, Rhizoctonia (?) *microsclerotia* can infect, 367.
—, *Sclerotium rolfsii* on, in U.S.A., 332.
— *stipulacea* and *L. striata, Corticium solani* on, in U.S.A., 19.
Lettuce (*Lactuca sativa* and *L. scariola*), *Botrytis* on, in Italy, 530.
—, *Botrytis cinerea* on, 623; control, 270.
—, *Chrysanthemum* mosaic virus can infect, 239.
—, *Corticium* on, 265.
—, — *solani* on, in U.S.A., 5; control, 5, 271.
—, deterioration of, during marketing in England, 449.
—, factory gases injurious to, 571.
—, *Fusarium* on, 265.
—, *Marssonina panattoniana* on, control, 247.
—, molybdenum deficiency in, in England, 417.
— mosaic virus on lettuce in Great Britain, 5, 314; (?) Spain, 367; U.S.A., 164; control, 5, 164, 314; losses caused by, 5; transmission of, by *Macrosiphum euphorbiae*, 5, 314; *M. pelargonii* and *M. sonchi*, 367; *Myzus persicae*, 5, 314, 367; seed, 314; to *Carduus broteroi, Lathyrus sativus*, pea, and *Urospermum picroides*, 368.
—, nitrogen and phosphorus deficiency in, in U.S.A., 307.
—, *Phyllosticta multiformis* on, in Italy, 530.
—, *Pleospora herbarum* on, in Holland and Italy, 164.
—, *Pseudomonas marginalis* on, 165; in U.S.A., 530.
—, *Puccinia opizii* on, in England, 589.
—, *Pythium* on, in Italy, 530.
—, — *aphanidermatum* on, in India, 588.
—, — *debaryanum* on, 623; in U.S.A., 5.
—, — *irregulare* and *P. spinosum* on, in U.S.A., 5.
—, — *ultimum* on, 623.
—, seed-borne diseases of, control, 264.
— tipburn in Holland, 588.
—, tomato spotted wilt virus on, transmission of, to groundnut, 46.
Leveillula taurica, geographical distribution of, 160.
— — on chilli and eggplant in Palestine, 361; control, 563.
— — on potato in Israel, 361.
— — on *Teucrium chamaedrys* in France, 209.
— — on tomato in Israel, 361.
— — f. *hibisci* on *Hibiscus cannabinus* in U.S.A., 384.
Levisticum officinale, Helicobasidium purpureum on, in Holland, 478.
Leytosol C, use of, as a seed treatment for cereals, 546.
Libocedrus decurrens, Phytophthora cinnamomi on, in U.S.A., 553.
Lichens in S. Africa, 515.
Lignin, chemistry of, 526.
—, decomposition of, 414.
Ligustrum vulgare, see Privet.
Lilac (*Syringa vulgaris*), *Oidium erysiphoides* on, in Yugoslavia, 594.
—, — *syringae* on, in Austria, 552; Great Britain, Spain, and Switzerland, 240; (?) introduced from U.S.A., 240.
— virus disease in Yugoslavia, 328.
Lily (*Lilium*), *Botrytis cinerea* on, in N. America, 119.
—, — *elliptica* on, in Italy, 185; N. America, 119.
—, — *liliorum* on, in U.S.A., 119.
[Lily], *Sclerotium delphinii* on, in India, 554; host range of, 554.
Lily of the valley (*Convallaria majalis*), *Botrytis paeoniae* on, in England, 491.
Lima bean, see *Phaseolus lunatus*.
Limantuho, use of, as a wood pulp preservative, 74.
Lime (*Citrus aurantiifolia*) disease in the Gold Coast, 62; relationship between tristeza, stem-pitting, and, 62.
Lime tree (*Tilia*) cowl-forming virus in Czechoslovakia, 38.
—, *Pyrenochaeta pubescens* on, in Czechoslovakia, 38.
Lime, use of, against *Gladiolus* fluorine scorch, 554.
Lime-sulphur injury to apple, 189.
—, hydrophobic colloidal, effect of, on uredospore germ-tubes, 446.
Linseed (*Linum usitatissimum*), calcium deficiency in Australia, 117.
—, *Colletotrichum linicola* on, in Australia, 117.
—, *Macrophomina phaseoli* on, in India, 539.
—, *Melampsora lini* on, in India, 539; varietal reaction to, 328.
—, *Polyspora lini* can infect, 117.
—, see also Flax.
Linum marginale and *L. monogynum, Melampsora lini* can infect, 328.
— *usitatissimum*, see Flax and Linseed.
Lipomyces starkeyi in soil, 568.
Liquidambar styraciflua blight in U.S.A., 639.
Liroferm speciaal, use of, against *Botrytis tulipae* on tulip, 479.
Lirospora, use of, against *Cladosporium fulvum* on tomato, 479.
Lirovurex, use of, against *Cladosporium cucumerinum* on cucumber, 479.
Lithium, toxicity of, to citrus, 114.
— carbonate and other salts, use of, against *Erysiphe cichoracearum* on tobacco, 90, 462.
Lithocarpus densiflorus, Chalara quercina can infect, 357.
Loganberry (*Rubus loganobaccus*), *Botrytis cinerea* on, in U.S.A., 24.
—, *Gymnoconia interstitialis* on, in U.S.A., 24.
—, raspberry white root rot on, 440.
Lolium, Claviceps purpurea on, in Italy, 379.
—, *Puccinia graminis* on, in Australia, 330.
— *multiflorum, Calonectria nivalis* on, in Finland, 556.
— —, lucerne dwarf virus can infect, 168.
— —, nickel injury to, in Scotland, 631.
— —, *Pyrenophora lolii* on, in Holland, 476.
— —, *Typhula, T. borealis*, and *T. itoana* on, in Finland, 556.
— —, *Ustilago compacta* on, in U.S.A., 401.
— *perenne*, atmospheric pollution affecting, in England, 291.
— —, *Calonectria nivalis* on, in Finland, 556.
— —, lucerne dwarf virus can infect, 168.
— —, *Puccinia coronata* on, in Denmark 109.
— —, *Pyrenophora lolii* on, in Holland, 476.
— —, *Typhula, T. borealis*, and *T. itoana* on, in Finland, 556.
— *rigidum, Puccinia loliina* on, in Palestine, 146.
Lonicera, see Honeysuckle.
Lophodermium on *Tsuga heterophylla* in Alaska, 401.
— *piceae* on spruce in Alaska, 401.
— *pinastri* on cedar in U.S.S.R., 40.
— — on pine in Alaska, 401; France, 209; Holland, 516.

Loquat (*Eriobotrya japonica*), *Fusicladium dendriticum* var. *eriobotryae* on, in Yugoslavia, 335.
—, gemmiferous fungus on, in Mauritius, 538.
—, *Phomopsis cydoniae* on, in Portugal, 301.
Lotus corniculatus and *L. uliginosus*, *Corticium solani* on, in U.S.A., 19.
Loudetia, *Sorosporium loudetiae* on, 503; in the Cameroons, 633.
Lucerne (*Medicago sativa*), *Ascochyta imperfecta* on, in Canada, 52; Denmark, 172.
—, Basidiomycete on, 52; Canada, 332.
—, bean yellow dot virus on, in U.S.A., 266; host range of, 266.
—, *Cercospora zebrina* on, in Jamaica, 8.
—, *Corticium solani* on, in U.S.A., 19.
—, *Corynebacterium insidiosum* on, in Canada, 50; varietal reaction to, 387.
— dwarf virus in U.S.A., (?) 47, 168; host range of, 168; transmission of, by (?) *Carneocephala flaviceps*, 48; *C. fulgida*, *Draeculacephala minerva*, and *Hordnia circellata*, 168.
—, factory gases injurious to, 571.
—, *Fusarium* on, in Argentina, 436.
—, — *arthrosporioides* and *F. avenaceum* on, in Canada, 493.
—, *Helicobasidium purpureum* on, in S. Africa, 460.
—, molybdenum deficiency in, in New S. Wales, 104.
— mosaic virus, bean yellow dot a strain of, in U.S.A., 266.
— — — on clover in New Zealand, 319.
— — — on lucerne in Germany, 587; ? U.S.A., 266; factors affecting, 266, 474.
— — — on *Nicotiana glutinosa* and tobacco, effect of guanazolo on, 318.
—, *Peronospora trifoliorum* on, in Southern Rhodesia, 475.
—, *Physarum* on, in S. Australia, 344.
—, *Pseudopeziza medicaginis* on, in Denmark, 172; Holland, 516.
—, *Pythium* on, in Argentina, 436.
—, — *aphanidermatum* on, in Venezuela, 33.
—, *Rhizoctonia* on, in Argentina, 436.
—, *Sclerotinia trifoliorum* on, in Denmark, 172.
—, *Sclerotium rolfsii* on, in U.S.A., 332.
—, *Thielaviopsis basicola* on, in U.S.S.R., 187.
—, *Urophlyctis alfalfae* on, in Greece, 7.
—, *Verticillium albo-atrum* on, in Holland, 476.
—, *Volutella* on, in U.S.A., 332.
— witches' broom virus on lucerne in Australia, 125; host range of, 125; (?) identical with tomato big bud virus, 125; transmission of, by *Cuscuta campestris*, 332; grafting, 332; *Orosius argentatus*, 125; to carrot, tomato, and *Vinca rosea*, 332.
— — — — on potato, 332.
— — — — on tomato, 125, 332.
— — — — on *Vinca rosea*, 125, 332.
—, zinc deficiency in, in U.S.A., 610.
Lunaria annua, *Alternaria brassicae* on, in U.S.A., 239.
Lunasan, use of, as a seed treatment for barley and oats, 108.
Lupin (*Lupinus*), bean yellow dot virus can infect, 266.
—, bean yellow mosaic virus on, in Germany, 535, 587.
—, cucumber mosaic virus on, in Germany, 587.
—, lime-induced chlorosis of, potassium in relation to, 558.
—, pea enation mosaic virus on, in Germany, 313.
— virus disease in U.S.A., 240, 541; transmission of, by aphids and sap, 241; to *Capsicum annuum* and cucumber, 241.
Lupulon, effect of, on *Ascochyta pisi*, 528.
Lycium rhombifolium, potato virus Y on, 293.
Lycoperdon, spore dispersal in, 251.
— *giganteum* on the ground in Great Britain, 154.
Lycopersicon esculentum, see Tomato.
Lycopersin, production of, by *Fusarium bulbigenum* var. *lycopersici* and *F. vasinfectum*, 450.
Lycopodium, spore dispersal in, 251.
Lycopsis, *Puccinia dispersa* on, 376.
Lycopus europaeus, *Puccinia menthae* on, in Palestine, 146.
Lysine polypeptides, effect of, on tobacco mosaic virus, 404.
Lysol, use of, against *Bacterium marginatum* on *Gladiolus*, 54; *Fusarium oxysporum* f. *gladioli* on *Gladiolus*, 119; *Sclerotinia gladioli* on *Gladiolus*, 120.

m-cresyl acetate, use of, against moulds on optical instruments, 622.
Macrophoma, state of *Physalospora paulowniae*, 153.
— *edulis* on sweet potato in Japan, 102.
Macrophomina phaseoli, antagonism of, to *Venturia inaequalis*, 244.
— — on coffee in the Ivory Coast, 282.
— — on cowpea in U.S.A., 589.
— — on *Crotalaria juncea* in Southern Rhodesia, 475.
— — on *Hibiscus cannabinus* in U.S.A., 489.
— — on hollyhock in India, 328.
— — on linseed in India, 539.
— — on pine in Greece, 172; U.S.A., 307; association of, with nematodes, 307.
— — on potato, varietal reaction to, 540.
— — on vine in Italy, 167.
Macrosiphum dirhodum transmitting barley yellow dwarf virus, 233; cereal yellow dwarf virus, 597.
— *euphorbiae* transmitting cucumber mosaic virus, 221, 580; lettuce mosaic virus, 5, 314.
— *geranicola* transmitting *Erodium* red leaf virus, 19.
— *granarium* transmitting barley yellow dwarf virus, 233; cereal yellow dwarf virus, 597.
— *malvae* subsp. *rogersii* transmitting strawberry viruses, 390.
— *onobrychis* transmitting *Matthiola incana* mosaic virus, 370.
— *pelargonii* transmitting *Erodium* red leaf virus, 19; lettuce mosaic virus, 367; strawberry viruses, 131.
— *pisi* transmitting clover vein mosaic virus, 99; melon mosaic virus, 472; pea enation mosaic virus, 313; *Primula* mosaic virus, 18; radish mosaic virus, 43; turnip mosaic virus, 369; Wisconsin pea stunt virus, 99.
— *solani* transmitting onion yellow dwarf virus, 369; *Primula* mosaic virus, 18; radish mosaic virus, 43.
— *solanifolii* transmitting chilli mosaic virus, 419; *Dahlia* mosaic virus, 121; potato leaf roll virus, 201.
— *sonchi* transmitting lettuce mosaic virus, 367.
Macrosporium carthami on safflower in Canada, 632.
Macrosteles divisus, incubation period of aster yellows virus in, 48.
— —, multiplication of aster yellows virus in, 221, 475.
— —, technique for obtaining saliva from, 318.
— — transmitting aster yellows virus, 18, 48.

Magadi ash Burgundy, use of, against coffee physiological leaf fall, 173.
Magnesium deficiency in apple in Holland, 287; Norway, 559; cherry in Norway, 559; orange in Israel, 383; pear in Norway, 559; plants, 514; plum in Norway, 559; soil, technique for determining, 32; use of magnesian limestone for the correction of, 514.
— oxide, effect of, on *Piricularia oryzae* on rice, 140.
— oxychloride, use of, against *Merulius lacrymans* on timber, 262.
— sulphate, use of, against magnesium deficiency in orange, 383.
— thiosulphate, use of, against powdery mildews, 248.
Magnitsky's solution, use of, for preserving larger fungi, 252.
Magnolia obovata, *Microsphaera magnoliae* on, in Japan, 578.
Mahonia, see Barberry.
Maize (*Zea mays*), *Acremoniella atra* on, in S. Africa, 460.
—, *Ascochyta maydis* on, in French Equatorial Africa, 280, 281.
—, — *zeae* and *A. zeina* on, in French Equatorial Africa, 281.
—, *Aspergillus candidus*, *A. flavus*, and *A. glaucus* on stored, in U.S.A., 602.
—, *Botrytis* on, in Mexico, 373.
—, *Cephalosporium* on stored, in U.S.A., 602.
—, *Cercospora sorghi* on, in French Equatorial Africa, 281.
—, *Coleroa boukokoensis* and *C. maydicola* on, in French Equatorial Africa, 280.
—, *Colletotrichum zeae* on, in French Equatorial Africa, 281.
—, *Coniothyrium maydis* on, in French Equatorial Africa, 280.
—, — *zeae* on, in French Equatorial Africa, 281.
—, *Corticium* on, in Mexico, 373.
—, — *solani* on, in Canada, 60.
—, cucumber mosaic virus on, 435; in the Philippines, 119; transmission of, by aphids, 119.
—, damping-off of, in Holland, 479.
—, *Didymosphaeria maydis* on, in French Equatorial Africa, 280.
—, *Diplodia* on, in U.S.A., 280.
—, — *macrospora* on, geographical distribution of, 160.
—, — *zeae* on, in Canada, 52; Rhodesia, 487; U.S.A., 61; breeding against, 370; varietal reaction to, 326.
—, — *zeicola* on, in French Equatorial Africa, 280.
—, *Diplodina drouillonii* on, in French Equatorial Africa, 280.
— diseases, bibliography of, 180; seed injury in relation to seed borne, 602; seed treatment against, in Colombia, 113; technique for testing seed for, 61.
— dwarfing in Italy, (?) virus causing, 13.
— ear rot, various fungi causing, in U.S.A., 61.
— epidemic dwarfing in Italy, (?) virus nature of, 180.
—, *Fusarium* on, in Mexico, 373; U.S.A., 602.
—, *Gibberella* on, in U.S.A., 280.
—, — *fujikuroi* on, in Canada, 52, 60; Rhodesia, 487; S. Africa, 536; breeding against, 370.
—, — — var. *subglutinans* on, in Rhodesia, 487.
—, — *zeae* on, in Canada, 60; Holland, 476; Rhodesia, 487; U.S.A., 61; breeding against, 370; varietal reaction to, 326, 430.
[Maize], *Helicobasidium mompa* on, immunity from, 546.
—, *Helminthosporium carbonum* on, genetics of, 380.
—, — *turcicum* on, in S. Africa, 536; U.S.A., 13, 61, 280, 325, 542, 550; breeding against, 550, 551; control, 13, 236; factors affecting, 236, 542; genetics of, 550, 551; leaves as sources of infection by, 325; varietal reaction to, 236, 280, 542, 550.
— leaf-spotting in Canada, 486.
—, *Leptosphaeria maydis*, *L. variiseptata*, *L. zeae*, *L. zeae-maydis*, and *L. zeicola* on, in French Equatorial Africa, 280–281.
— mosaic virus in the Philippines, 119; transmission of, by *Aphis maidis*, 119; to *Musa textilis*, 119.
—, *Mycosphaerella zeicola* and *M. zeina* on, in French Equatorial Africa, 280.
—, *Nigrospora oryzae* on, in S. Africa, 460; breeding against, 370.
—, *Ophiobolus zeae* on, in French Equatorial Africa, 280.
—, *Penicillium* on stored, in U.S.A., 602.
—, *Phoma zeicola* on, in French Equatorial Africa, 281.
—, *Phyllosticta zeae-maydis* on, in French Equatorial Africa, 280.
—, *Physalospora tucumanensis*, *P. zeae*, *P. zeicola*, and *Pleosphaerulina zeicola* on, in French Equatorial Africa, 281.
—, *Puccinia polysora* on, in the Gold Coast, Nigeria, and Sierra Leone, 325; geographical distribution of, 160.
—, — *sorghi* on, in Argentina, 434; Mexico, 371; U.S.A., 13, 61; W. Africa, 325; Yugoslavia, 594; control, 13, 371; life cycle of, 434.
—, *Pythium* on, in Mexico, 373.
—, — *aphanidermatum* on, in India, 551.
—, — *arrhenomanes* on, in Canada, 60; breeding against, 430; control, 430; factors affecting, 60; varietal reaction to, 430.
—, — *debaryanum* on, in Canada, 60; control, 14.
—, — *ultimum* on, control, 14.
—, *Septoria zeicola* on, in French Equatorial Africa, 281.
—, *Sphacelotheca reiliana* on, in New Zealand, 324; S. Africa, 536.
— streak virus on maize in E. Africa, 421; S. Africa, 486, 536; transmission of, by *Cicadulina mbila*, 486; varietal reaction to, 184.
— stunt virus in Mexico, 370; transmission of, by *Dalbulus elimatus*, 370; *D. maidis*, 61, 318.
—, sugar-cane mosaic virus on, tests for, using maize as an indicator plant, 88; varietal reaction to, 459.
—, tobacco ring spot virus can infect, 435.
—, *Ustilago maydis* on, in France, 325; Holland, 476.
—, *Xanthomonas stewarti* on, in U.S.A., 61; technique for determining distribution of, in the host, 62.
—, — *vasculorum* f. *zeae* on, in S. Africa, 536.
—, zinc deficiency in, in U.S.A., 141.
Malachite green, use of, against *Bacterium tumefaciens*, 106; *Podosphaera leucotricha* on apple, 51; potato virus X, 223; powdery mildews, 248; tobacco mosaic virus, 223.
Maleic hydrazide, effect of, on bean growth, 529.
Malus floribunda, *Podosphaera leucotricha* on, in Switzerland, 148.
— *pumila*, see Apple.
Malvaceae, virus diseases of, in the Anglo-Egyptian Sudan, 327.

Man, diseases of, meteorobiological factors in relation to, 134.
Mandarin orange, see Orange.
Mandevilla, Hemileia mandevillae on, in Kenya, 402.
Manganese deficiency in *Alopecurus pratensis* in Switzerland, 387; apple in Canada, 438; Norway, 559; apricot in Canada, 438; *Arrhenatherum elatius* in Switzerland, 387; bean in France, 95; cereals in Switzerland, 387; (?) cherry in Switzerland, 223; *Chrysanthemum* in England, 223; citrus in India, 541; *Gladiolus* in U.S.A., 490; leek in France, 95; oats, 50; in Switzerland, 387; varietal reaction to, 235; pea in France, 95; peach in Canada, 438; *Phleum pratense*, 188; potato in France, 95; rose in England, 223; spinach in France, 95; various plants, 514; vegetables in France, 95.
— dinicotine salicylate, use of, against *Botrytis fabae* on broad bean, 445.
— sulphate, use of, against manganese deficiency in apple, 438, 559; apricot, 438; bean and leek, 95; pea, 95; peach, 438; potato, 95; raspberry, 559; spinach, 95.
Mango (*Mangifera indica*), *Aspergillus niger* in India, 132.
—, (?) *Bacillus subtilis* on, in India, 390.
—, *Gloeosporium mangiferae* on, in India, 71.
—, *Glomerella cingulata* on, in French Guinea and the Ivory Coast, 443.
—, *Oidium mangiferae* on, control, 563.
—, *Sclerotium delphinii* can infect, 554.
Mangold (*Beta vulgaris*), beet virus yellows on, in Great Britain, 159.
—, *Oidium* on, control, 563.
— virus, new latent, in Great Britain, 157.
—, see also Beet.
Manihot palmata, Gloeosporium caballeroi on, in Spain, 577.
— *utilissima*, see Cassava.
Manila Hemp, see *Musa textilis*.
Manzate, use of, against *Alternaria solani* on potato and tomato, 392; *Colletotrichum phomoides* on tomato, 392; *Elsinoe veneta* on raspberry, 499; *Phytophthora infestans* on potato and tomato, 392.
Maple, see *Acer*.
Marasmius in Jamaica, Trinidad, and Venezuela, 300.
— on cacao in New Guinea, 9.
— *graminum* var. *equicrinis* on bamboo in Trinidad, 300.
— *perniciosus* on cacao in Brazil, 545; (?) Colombia, 108; ? in Cuba, 301; Ecuador, 56, 107; breeding against, 424; control, 108, 545; factors affecting, 57; losses caused by, 545; physiology of, 107; renamed *Crinipellis perniciosus*, 300; technique for selecting seeds resistant to, 424; varietal reaction to, 57, 424.
Marbadal, effect of, on cereal rusts, 176.
Marigold, see *Calendula officinalis*.
Marmor medicaginis var. *phaseoli*, bean yellow dot virus named, 266.
Marrow, see Vegetable marrow.
Marssonina agaves on sisal in Venezuela, 16.
— *panattoniana* on lettuce, control, 247.
Massaria immersa on coffee in the Ivory Coast, 282.
Matricaria, Chrysanthemum mosaic virus can infect, 284.
Matthiola, Fusarium conglutinans can infect, 362.
—, *Peronospora matthiolae* on, in Denmark, 172.
—, turnip mosaic virus can infect, 363.
[*Matthiola*] *incana, Alternaria brassicicola* on, in Denmark, 224.
— — mosaic virus on cauliflower in Germany, 370; transmission of, by *Macrosiphum onobrychis*, 370.
— — — — — on *Matthiola incana* in Denmark, 172; Germany, 370; (?) identical with cauliflower mosaic virus, 370; transmission of, by *Macrosiphum onobrychis*, 370; varietal reaction to, 172.
— — var. *annua* mosaic virus in U.S.A., 491; transmission of, by *Myzus persicae* and *Rhopalosiphum pseudobrassicae*, 491.
Medicago, Helicobasidium purpureum on, in S. Africa, 460.
— *falcata, Corynebacterium insidiosum* on, in Alaska, 436.
— —, *Volutella* on, in U.S.A., 332.
— *hispida, Uromyces striatus* on, in Spanish Morocco, 577.
— *lupulina, Ascochyta imperfecta* on, in Denmark, 172.
— *sativa*, see Lucerne.
— *turbinata, Uromyces striatus* on, in Spanish Morocco, 577.
Melampsora abietis-canadensis on poplar in U.S.A., 39.
— *allii-populina* on poplar in Greece, 7.
— *lini* can infect *Linum marginale* and *L. monogynum*, 328.
— — in the air in India, 540.
— — on flax in Abyssinia, 32; Argentina, 433; Australia, 117; India, 539; New S. Wales, 185; U.S.A., 489; U.S.S.R., 116; breeding against, 489; effect of, on yield, 433; factors affecting, 433; 'free' phosphorus compounds in relation to, 117; genetics of, 489; life-cycle of, 433; lysis of uredospore germ-tubes in, 446; physiologic races of, 116, 185, 539; technique for inoculating, 185; varietal reaction to, 116, 185, 328, 489, 538, 552.
— — on linseed in India, 539; varietal reaction to, 328.
— *medusae* on poplar in U.S.A., 39.
— *oblonga* on pine in India, 411.
— *pinitorqua* on pine and poplar in Sweden, 147.
Melanconiales, Russian book on, 515.
Melanconium fuligineum, effect of method of inoculation on sporulation in, 619.
Melandrium album, cucumber mosaic virus on, in U.S.A., 273.
Melanopsamella inaequalis, Gonytrichum caesium imperfect state of, 301.
Melanosella mors-apis on bees in Brazil, 488.
Melanospora parasitica on *Beauveria bassiana* and *Spicaria gracilis* in the Pacific Northwest, 116.
Melilotus, effect of alternaric acid on, 305.
—, *Phytophthora cactorum* on, in Canada, 50.
— *alba, Ascochyta imperfecta* on, in Canada, 493.
— —, bean yellow dot virus can infect, 266.
— —, — — mosaic virus on, 535; in U.S.A., 469.
— —, clover vein mosaic virus on, comparison of, with Wisconsin pea stunt virus, 98.
— —, *Corticium solani* on, in Canada, 493.
— —, *Fusarium* on, in Canada, 493.
— —, *Mycosphaerella lethalis, Phytophthora cactorum, Pythium debaryanum*, and *P. ultimum* on, in Canada, 493.
— —, *Sclerotinia trifoliorum* on, in Denmark, 172.
— —, Wisconsin pea stunt virus on, comparison of, with clover vein mosaic, 98.
— — var. *annua*, lucerne dwarf virus can infect, 168.

[*Melilotus*] *indica*, lucerne dwarf virus can infect, 168.
— *officinalis*, *Ascochyta imperfecta* on, in Canada, 493.
— —, bean yellow mosaic virus on, in U.S.A., 469.
— —, *Corticium solani* and *Fusarium* on, in Canada, 493.
— —, lucerne dwarf virus can infect, 168.
— —, *Mycosphaerella lethalis*, *Phytophthora cactorum*, *Pythium debaryanum*, and *P. ultimum* on, in Canada, 493.
— *suaveolens*, *Phytophthora cactorum* can infect, 493.
Meliola in Brazil, 33.
Meliolaceae in Africa, 258; Brazil, 33.
Melon (*Cucumis melo*), *Corynespora cassiicola* on, in Germany, 584.
—, cucumber mosaic virus can infect, 435.
—, *Fusarium bulbigenum* var. *niveum* on, in Canada, 473.
— mosaic virus on cantaloupe in U.S.A., 472.
— — — on cucurbits in U.S.A., 368; transmission of, by beetles, 368.
— — — on melon in U.S.A., 472; transmission of, by *Macrosiphum pisi*, 472.
— — — on squash, 472.
—, *Pseudoperonospora cubensis* on, varietal reaction to, 362.
—, tobacco ring spot virus can infect, 435.
— vein necrosis virus on cucurbitaceae in U.S.A., 368.
Memnoniella echinata, growth and metabolism of, 395.
— — on cellulose fibres, 569.
— — on cotton textiles, control, 30.
Mentha, lucerne dwarf virus can infect, 168.
—, *Verticillium albo-atrum* var. *menthae* on, 576.
— *aquatica*, *Puccinia menthae* on, in Palestine, 146.
— *arvensis*, *Puccinia menthae* on, in U.S.A., 351; physiologic races of, 351.
— *crispa*, *Puccinia menthae* on, in Palestine, 146.
— *longifolia*, *Puccinia menthae* on, in U.S.A., 351.
— *piperita*, see Peppermint.
— *rotundifolia*, *Puccinia menthae* on, in U.S.A., 351.
— *silvestris*, *Puccinia menthae* on, in Palestine, 146.
— *spicata*, *Puccinia menthae* on, in U.S.A., 351.
Meracet, use of, against *Sclerotinia sclerotiorum* on sunflower, 373; as a seed treatment for sunflower, 242.
Mercuran A.L., use of, against *Sphacelotheca sorghi* on sorghum, 181; *Tilletia caries* and *T. foetida*, 177.
— A.S., use of, against *Helminthosporium gramineum* on barley, 178; *Ustilago avenae* and *U. kolleri* on oats, 178.
Mercuric chloride, injury to turf, 609.
— —, toxicity of, to damping-off fungi, 412.
— —, use of, against *Bacterium marginatum* on *Gladiolus*, 54; basidiomycete on clover and lucerne, 332; damping-off of carrot, 373; *Phytophthora citrophthora*, *P. palmivora*, and *P. parasitica* on citrus, 326; *Plasmodiophora brassicae* on cabbage, 226; poplar diseases, 639; *Pythium aphanidermatum* on cabbage, cauliflower, and tomato, 526; *Sclerotinia homoeocarpa* on turf, 609; as a seed treatment for potato, 350; as a timber preservative, 157, 263, 310.
— —, acidulated, toxicity of, to *Bacterium tumefaciens*, 481, 595.
Mercurous chloride injury to turf, 609.
— —, use of, against *Plasmodiophora brassicae* on cabbage, 226; *Sclerotinia homoeocarpa* on turf, 609.
Mercury, action of, as soil fungicide, 195.
— alkyls, use of, against *Tilletia* on wheat, 428.
— carbamide, use of, against *Gibberella fujikuroi* on rice, 629.
— compounds, use of, against *Venturia inaequalis*, 67, 126.
— —, organic, evaluation of, 565.
— —, —, use of, against damping-off of beet, 533; *Fusarium* on oats, 593; *Phytophthora infestans* on potato, 81; *P. parasitica* on papaw, 339; *Podosphaera leucotricha*, 290; *Pyrenophora avenae* on oats, 593; *Tilletia caries*, 533, 565, 598; *T. foetida*, 228; as a seed treatment for barley, 427; beet, 266; oats, 427.
— phthalimide and succinimide, use of, against *Gibberella fujikuroi* on rice, 629.
Mercusol, use of, against *Sphacelotheca sorghi* on sorghum, 181.
Meredith's actinomycete, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271.
Mergamma, use of, against *Tilletia caries* and *T. foetida*, 178.
— C, use of, as a seed treatment for cereals, 546.
Meria laricis on larch, in Britain, 91.
Merulius in New Zealand, 33; in S. Africa, 460.
— *himantioides* on timber in Great Britain, 154.
— *lacrymans*, antagonism of, to basidiomycetes, 583; of a bacterium to, 156, 375.
— — on timber in Great Britain, 41, 154; New Zealand, 33; Portugal, 93; Sweden, 414, 526; compatibility between strains of, 509; control, 41, 262, 465, 584.
— — on wood pulp, effect of bacterium culture filtrates on, 156.
— *molluscus* on brickwork in Great Britain, 154.
— *nothofagi* on broad-leaved trees in New Zealand, 33.
— *pinastri* on timber in Great Britain, 154.
— *tignicola* on timber in Denmark, 525.
— *tremellosus* on oak, 409.
Mesobotrys fusca synonym of *Gonytrichum macrocladum*, 301.
— *macrocladа* synonym of *Gonytrichum macrocladum*, 301.
Meso-inositol, use of, as a fungicide, 27.
Metarrhizium brunneum can infect *Platysamia cecropia*, 115.
— *glutinosum* on cotton textiles, control, 30.
Meteorobiological factors in relation to diseases of man and plants, 134.
Methocel slurry, 365.
Methoxyethyl mercuric chloride, use of, against *Tilletia caries*, 565.
2-methoxyethyl mercury, use of, as a fungicide, 26.
Methyl bromide, use of, against *Fusarium*, *Pythium*, and *Rhizoctonia* on celery, 269; tobacco soil-borne diseases, 249.
— phloroglucinol, use of, as a fungicide, 26.
— salicylate, toxicity of, to *Bacterium tumefaciens*, 595.
Methylchloroacetamide, use of, against *Tilletia caries*, 484.
Methyldebenal and methylpyrimal, effect of, on cereal rusts, 176.
Microascus trigonosporus on aster, *Cosmos bipinnatus*, and *Foeniculum vulgare* in Denmark, 224.
Microbiology, annual review of, 196.
—, German book on, 251.

Microdiplodia gardeniae on *Gardenia* in Greece, 186.
Microgel, use of, against *Phytophthora infestans* on tomato, 372.
Micro-injection needle, 344.
Micromeria serpyllifolia, *Puccinia menthae* on, in Palestine, 146.
Micro-organisms as fat-producers, 252.
—, genetics of, book on, 197.
— in soil, antagonism of, to *Colletotrichum lini-cola*, 238.
Microscopy, dark-ground, slides and cover glasses for, 73.
(?) *Microsphaera alphitoides* on chestnut in Switzerland, 148.
— *magnoliae* on *Magnolia obovata* in Japan, 578.
— *querci* on oak in Japan, 578.
Microstroma on peach in U.S.A., 245.
— *juglandis* on walnut in Yugoslavia, 353.
Microthyrium culmigenum on *Arrhenatherum*, *Dactylis*, grasses, *Holcus mollis*, and oats in Great Britain, 89.
Military equipment, fungi on, causing deterioration, 135.
Milletia irvinei, *Calonectria rigidiuscula* can infect, 232.
Miltonia pseudo-bulb rot and scorch in U.S.A., 186.
Mimulus guttatus, *Peronospora jacksonii* on, in U.S.A., 149.
Minor elements and their relation to animal and plant nutrition, 253; fruit trees, 20.
Mollugo verticillata, cucumber mosaic virus on, in U.S.A., 273.
Molybdenum deficiency in *Brassica*, 32; broccoli in England, 2; cauliflower in England, 2, 417, 466; Holland, 96; clover in New S. Wales, 104; lettuce in England, 417; lucerne, tomato, and vegetables in New S. Wales, 104.
— excess in cauliflower, 466.
—, function of, in plant nutrition, 576.
— in soil, technique for determining, 32.
Monarda, *Puccinia menthae* on, in U.S.A., 351.
—, *Verticillium albo-atrum* var. *menthae* on, 576.
Monardella, *Puccinia menthae* on, in U.S.A., 351.
Monilia roreri on cacao in Ecuador, 56.
Moniliopsis aderholdi on vegetables in Germany, 584.
Monocalcium arsenite, use of, against *Sclerotinia laxa* on apple, 559.
Monochaetia unicornis on *Cupressus* in E. Africa, 8; New S. Wales, 225.
Monochaetiae, species of, 227.
Monotospora daleae, culture of, 93.
— *lanuginosa* on cotton textiles, 296.
Mortierella alpina on birch in Canada, 305.
— in soil in England, 142.
Morus, see Mulberry.
Mosaic diseases, see under hosts.
Moulds in canned spices, edible colloidal gums, and flour, control, 505.
— in lacquer, paint, and varnish, control, 396.
— on boxes, control, 23.
— on building materials in England, 507.
— on citrus in Morocco, 430.
— on filter paper, 450.
— on military equipment, 135, 346.
— on optical instruments in the Panama Canal Zone, 622.
— on orange in Morocco, 431.
— on prunes, factors affecting, 252.
— on rice, stored, in India, 505.
— on tomato, control, 637.
[Moulds] on wheat, stored, 112; in Canada, 599.
Mucor, effect of rimocidin on, 395.
— in the air in India, 567.
— in soil in England, 142.
— on coco-nut, 114.
— on flax in Australia, 117.
— on rice in India, 505.
— on timber in Sweden, 42.
— on wheat, stored, in Canada, 599.
—, (?) *Septonema* parasitic on, 136.
— *flavus* on cotton textiles, 506.
— *hiemalis* in apple juice in England, 570.
— — on apple in Norway, 244.
— *melitophorus* on bees in Brazil, 488.
— *mucedo* on bees in Brazil, 488.
— —, resistance of, to low temperature, 28.
— *parvisporus* on cotton textiles, 506.
— *piriformis* on apple in Norway, 244.
— *plumbeus* on building materials in England, 507.
— *racemosus* in flour in U.S.A., 345.
— *spinosus*, effect of, on *Phytophthora citrophthora*, 431.
— — on cotton textiles, 506.
Mucorales, history and taxonomy of, 578.
Mucuna aterrima and *M. cinerea*, *Chaetoseptoria wellmanii* on, in Costa Rica, 47.
— *deeringiana*, *Chaetoseptoria wellmanii* on, in Costa Rica, 47.
— —, *Xanthomonas stizolobiicola* on, in India, 107.
Mulberry (*Morus*), *Fusarium* on, in U.S.S.R., 357.
—, *Phakopsora fici-erectae* on, in Formosa and Japan, 402.
—, *Polyporus cuticularis* on, in India, 410.
—, *Pseudomonas mori* on, production of protopectinase by, 230.
Murgantia histrionica transmitting *Phoma lingam* on cabbage, 157.
Musa paradisiaca, see Plantain.
— *sapientum*, see Banana.
— *textilis*, cucumber mosaic virus on, in the Philippines, 119.
— —, maize mosaic virus can infect, 119.
Mushroom (*Psalliota*), *Bacillus polymyxa* on, in England, 531.
—, *Dactylium* on, control, 531, 589.
—, *Geotrichum* on, control, 589.
—, *Mycogone perniciosa* on, control, 531, 589.
—, *Verticillium* on, control, 531, 589.
Mustard (*Brassica alba* and *B. nigra*), *Brassica nigra* virus on, transmission of, by *Myzus persicae* and *Rhopalosiphum pseudobrassicae*, 159.
—, *Plasmodiophora brassicae* on, in Germany, 527; U.S.A., 265.
—, turnip mosaic virus can infect, 363.
—, Chinese (*Brassica juncea*), *Pythium aphanidermatum* on, in India, 584.
Mycelium radicis atrovirens, culture of, 292.
Mycena in Jamaica, Trinidad, and Venezuela, 300.
— *citricolor* on coffee in Colombia, 552; Costa Rica, 15, 184, 374; factors affecting, 15, 184, 374.
— *micropapillata* and *M. theobromicola* on cacao in Trinidad, 300.
(?) *Mycogone* on wheat, 177.
— *perniciosa* on mushroom, control, 531, 589.
Mycologists, industrial, mycological responsibilities of, 620.
Mycology, French book on, 503.
—, introduction to, book on, 27.
Mycorrhiza of apple in U.S.S.R., 622.

[Mycorrhiza] of beech in England, phosphate nutrition of, 396.
— of *Diospyros* in U.S.S.R., 622.
— of pine in relation to forking of roots, 347.
(?) — of potato in U.S.A., 396.
— of shrubs and trees in U.S.S.R., 622.
Mycosphaerella angulata on vine in U.S.A., 275.
— *brassicicola* on cabbage in U.S.A., 96.
— *fragariae* on *Potentilla* in Canada, 442.
— — on strawberry in Canada, 442; Greece, 173.
— *lethalis* on *Melilotus alba* and *M. officinalis* in Canada, 493.
— *maculiformis* on chestnut in France, 39.
(?) — *perseae* on avocado pear in Mexico, 289.
— *pinodes* on pea in Argentina, 344; Germany, 584; Holland, 471; Tasmania, 3; losses caused by, 3.
— *populorum* on poplar in U.S.A., 39.
— *zeicola* on maize in French Equatorial Africa, 281.
— *zeina* on maize in French Equatorial Africa, 280.
Myiocopron ramicolum on coffee in the Ivory Coast, 282.
Myrica gale, root nodules in, 36.
Myrothecium verrucaria, antibiosis of albidin to, 198; streptomycete A 67 to, 449.
— — in soil in Italy, 448; antagonism of, to *Botrytis cinerea*, *Corticium solani*, and *Fusarium*, 448.
— — on cellulose fibres, 569.
Myrtle (*Myrtus communis*), antibiotic from, in relation to soil microbiology, 134.
Myrtus compacta, *Phytophthora cinnamomi* on, in U.S.A., 553.
Myzaphis rosarum transmitting strawberry viruses, 131.
Myzus ascalonicus transmitting strawberry viruses, 390.
— *cerasi* transmitting western X-disease virus, 22.
— *circumflexus* transmitting onion yellow dwarf virus, 369; *Primula* mosaic virus, 18; radish mosaic virus, 43; turnip mosaic virus, 369.
— *convolvuli* transmitting *Dahlia* mosaic virus, 121; *Freesia* mosaic virus, 385.
— *ligustri* transmitting cucumber mosaic virus, 369; *Dahlia* mosaic virus, 369.
— *ornatus* transmitting cucumber mosaic virus, 221; *Dahlia* mosaic virus, 369; *Primula* mosaic virus, 18; radish mosaic virus, 43; strawberry viruses, 131.
— *persicae*, absorption of radio-active phosphorus by, 170.
— —, control, 348, 349.
— —, *Empusa planchoniana* on, in England, 256.
— — transmitting beet virus yellows, 159, 467, 587; *Brassica nigra* virus, 158; celery mosaic virus, 269; chilli mosaic virus, 419; cucumber mosaic virus, 221; *Dahlia* mosaic virus, 121; lettuce mosaic virus, 5, 314, 367; *Matthiola incana* var. *annua* mosaic virus, 491; *Nasturtium* virus 1, 527; poppy mosaic virus, 370; potato leaf roll virus, 170, 201, 348, 349, 571, 624; potato virus diseases, 624; potato virus Y, 348; radish mosaic virus, 43, 97; tobacco etch virus, 520; watermelon mosaic virus, western, 368.
— *porosus* transmitting strawberry viruses, 131.

Nabam, identity of gaseous toxicants from, 193.
—, use of, against *Botrytis gladiolorum* on *Gladiolus*, 186; *Peronospora parasitica* on cabbage and cauliflower, 541; *Phytophthora infestans* on tomato, 226; *Sphaerotheca humuli* on *Rubus flagellaris*, 288.
Naetrocymbe in Brazil, 33.
Naphthoquinone, fungicidal properties of, 340.
Narcissus, *Ramularia vallisumbrosae* on, geographical distribution of, 160.
—, *Stromatinia narcissi* on, in Canada, 606; synonymy of, 607.
— *pseudo-narcissus*, chocolate spot disease of, in Denmark, 172.
Nasturtium officinale, see Watercress.
— virus 1 on watercress in Belgium, 526; transmission of, by *Myzus persicae*, 527.
Nectarine (*Prunus persica*), *Gloeosporium laeticolor* on, in Japan, 128.
—, plum mosaic virus can infect, 336.
—, *Sclerotinia fructicola* on, varietal reaction to, 243.
Nectria on oak in France, 152.
— on poplar in U.S.A., 260.
— *cinnabarina* on *Acer* in Holland, 478.
— — on elm, 151; varietal reaction to, 637.
— *coccinea* on beach in Germany, 91.
— *coffeigena* on coffee in the Ivory Coast, 282.
— *cucurbitula* on *Abies alba*, *A. balsamea*, *A. nobilis*, and *A. nordmanniana* in Norway, 92.
— *diploa* on scale insects in India, 634.
— *dodgei* on coffee and *Crotalaria vitellina* in El Salvador, 302.
— *galligena*, mutation of, induced by heteroauxin, 126.
— — on apple in Chile, 373; Norway, 559; Syria, 126; control, 438, 559; study on, 438; varietal reaction to, 244, 373; *Zeuzera pyrina* associated with, 126.
— — on pear in Chile, 373.
— — on *Sorbus aucuparia* in Chile, 373.
— *haematococca* on *Pterospermum acerifolium* in Mauritius, 538.
— *inventa* in sodium carboxymethyl cellulose solutions in Sweden, control, 345.
— *rubi* on *Cyclamen* in Tanganyika Territory, 226; *Cylindrocarpon janthothele* imperfect state of, 226.
Nematoctonus tylosporus on nematodes in Great Britain, 16.
Nematode galls on *Arctagrostis latifolia* and *Dupontia fisheri* in Canada mistaken for ergot, 285.
Nematodes, *Arthrobotrys robusta* and *Dactylella lobata* on, in England, 283.
— on pine, association of, with fungi in U.S.A., 307.
—, predacious fungi on, in Great Britain, 16.
—, *Trichothecium cystosporium* on, in England, 283.
Nematospora coryli on bean in Tanganyika Territory, 162.
— — on cotton in French Equatorial Africa, 115.
— *gossypii* on cotton in French Equatorial Africa, 115.
Neocosmospora vasinfecta on *Cyamopsis tetragonoloba* in India, 386.
Neofabraea perennans on apple in Denmark, 560.
Neomycin, inhibition of *Corynebacterium*, *Xanthomonas pruni*, and *X. vesicatoria* by, 480.
Neoplastic growth in plants, review of, 105.
Nerium oleander, see Oleander.
Nettle (*Urtica*), *Erysiphe polygoni* on, in U.S.S.R., 129.
Newbouldia laevis, *Calonectria rigidiuscula* can infect, 232.
New records of *Alternaria brassicae* on turnip in Kenya, 173; *A. dianthicola* on carnation in

U.S.A., 239; *A. porri* on onion in Kenya, 173; *Ascochyta cichorii* on chicory in Greece, 256; *A. phaseolorum* on bean in Peru, 208; beet yellows virus in Yugoslavia, 363; *Botrytis gladiolorum* on *Gladiolus* in Denmark, 224; *B. liliorum* on lily in N. America, 119; *Ceratostomella paradoxa* on pineapple in Mexico, 375; *Cercospora arachidicola* on groundnut in Brazil, 532; Indonesia, 101; *C. carotae* on carrot and *C. zebrina* on lucerne in Jamaica, 8; *Cercosporella herpotrichoides* on wheat in Greece, 256; *Chrysanthemum* stunt mottle virus in New S. Wales, 225; citrus psorosis virus in U.S.S.R., 14; *Clasterosporium carpophilum* on peach in Peru, 208; *Coccomyces hiemalis* on cherry in Denmark, 172; *Coleosporium senecionis* on cineraria in Northern Ireland, 593; *Colletotrichum atramentarium* on potato in Peru, 208; *C. circinans* on onion in Greece, 256; *C. graminicola* on sorghum and Sudan grass in S. Africa, 536; *C. lindemuthianum* on Cruciferae in Puerto Rico, 362; *C. pisi* on pea and *Cordana musae* on banana in Peru, 208; *Corynebacterium fascians* on *Gladiolus* in Canada, 54; *C. michiganense* on tomato in India, 36; *Coryneum foliicola* on apple in Italy, 495; *Didymella applanata* on raspberry in Yugoslavia, 337; *Diplocarpon earliana* on strawberry in Jamaica, 8; *D. rosae* on rose in Peru, 208; *Elsinoe australis* on orange in Bolivia, 182; *Entyloma dahliae* on *Dahlia* in Italy, 607; *Fomes annosus* on timber in Portugal, 92; *Fusicladium carpophilum* on peach in Peru, 208; on plum in Kenya, 173; *Ganoderma lucidum* on olive in Greece, 256; *Gibberella fujikuroi* on sorghum in S. Africa, 536; *G. zeae* on barley and wheat in Mauritius, 538; *Isariopsis griseola* on bean in Sierra Leone, 476; *Microascus trigonosporus* on aster, *Cosmos bipinnatus* and *Foeniculum vulgare* in Denmark, 224; *Monochaetia unicornis* on *Cupressus* in New S. Wales, 225; *Oidium begoniae* on *Begonia* in France, 329; *Peronospora destructor* on onion in Peru, 208; *P. manshurica* on soy-bean in Yugoslavia, 367; *P. parasitica* on cabbage in Mauritius, 538; *P. trifoliorum* on lucerne in Southern Rhodesia, 475; *P. trigonella* on *Trigonella foenum-graecum* in Italy, 514; *Phoma lingam* on Cruciferae in Puerto Rico, 362; *Phytophthora cambivora* on *Casuarina equisetifolia* in Mauritius, 537; *P. citrophthora* on citrus in Mauritius, 538; *P. erythroseptica* on potato in Yugoslavia, 626; *P. infestans* on potato in Mozambique, 77; *P. parasitica* on onion in Southern Rhodesia, 475; on papaw in Brazil, 339; *P. syringae* on lemon in Greece, 256; *Piricularia oryzae* on rice in Southern Rhodesia, 475; *Polyporus circinatus* on pine in Portugal, 92; potato virus X on potato in Yugoslavia, 349; *Pseudomonas medicaginis* f. sp. *phaseolicola* on bean in Mauritius, 538; P. *savastanoi* f. sp. *nerii* on oleander in Greece, 225; *Puccinia cichorii* on chicory in New S. Wales, 225; *P. cynodontis* on *Cynodon dactylon* in Sierra Leone, 476; *Pucciniopsis caricae* on papaw in Peru, 208; *Ramularia lampsanae* on chicory in Greece, 7; *R. ligustrina* on privet in Italy, 492; *Rhabdocline pseudotsugae* on *Pseudotsuga taxifolia* var. *viridis* in Yugoslavia, 41; *Schizophyllum commune* on apple, cherry, oak, pear, vine, and walnut in Greece, 256; *Sclerotinia laxa* on peach in Chile, 354; *S. sclerotiorum* on potato in Greece, 7; on tomato in Greece, 256; *Sclerotium cepivorum* on onion in Denmark, 172; *Septoria pisi* on pea in Southern Rhodesia, 475; *Tilletia pennisetina* on *Pennisetum hohneckeri* in India, 147; tomato big bud virus on *Crotalaria juncea* in New S. Wales, 225; *Trametes squalens* on pine in Portugal, 92; *Uromyces appendiculatus* on bean in Puerto Rico, 362; *Urophlyctis alfalfae* on lucerne in Greece, 7; *Ustilago rabenhorstiana* on *Digitaria sanguinalis* in New S. Wales, 225; *U. tulipae* on tulip in Greece, 256; *Valsa leucostoma* on apple in Chile, 354; *Verticillium dahliae* on cotton in Mozambique, 114; *Xanthomonas campestris* on cauliflower and *X. juglandis* on walnut in Greece, 256.

Nicandra physaloides, red currant virus ring spot can infect, 245.

Nickel, toxicity of, to barley, beet, broad bean, cabbage, clover, crop plants, kale, *Lolium multiflorum*, oats, potato, swede, turnip, and wheat in Scotland, 631.

— dinicotine salicylate, use of, against *Botrytis fabae* on broad bean, 445.

Nicotiana acuminata, *N. arentsii*, *N. benavidesii*, *N. bigelovii*, and *N. debneyi*, tobacco rattle virus can infect, 405.

— *glauca*, red currant ring spot virus can infect, 245.

— —, tobacco rattle virus can infect, 405.

— *glutinosa*, bean yellow dot virus can infect, 266.

— —, cucumber mosaic virus can infect, 417, 435.

— —, lucerne mosaic virus on, effect of guanazolo on, 318.

— —, potato viruses X and Y can infect, 203.

— —, red currant ring spot virus can infect, 245.

— —, *Tagetes patula* mosaic virus can infect, 172.

— —, tobacco mosaic virus on, 34, 123, 211, 303; factors affecting, 317.

— —, tobacco rattle virus can infect, 405.

— —, — ring spot virus on, 435; factors affecting, 317.

— —, turnip mosaic virus can infect, 363.

— *goodspeedii*, *N. gossei*, and *N. knightiana*, tobacco rattle virus can infect, 405.

— *longiflora*, potato viruses X and Y can infect, 203.

— —, tobacco rattle virus can infect, 405.

— *megalosiphon*, *N. nudicaulis*, *N. otophora*, *N. palmeri*, *N. paniculata*, *N. plumbaginifolia*, *N. raimondii*, *N. repanda*, and *N. rotundiflora*, tobacco rattle virus can infect, 405.

— *rustica*, bean yellow dot virus can infect, 266.

— —, potato yellow dwarf virus on, antibiotics not controlling, 319.

— —, red currant virus ring spot can infect, 245.

— —, use of, as a test plant for tobacco white necrosis virus, 405.

— *setchellii*, tobacco rattle virus can infect, 405.

— *suaveolens*, tobacco rattle virus can infect, 405.

— *sylvestris*, red currant virus ring spot can infect, 245.

— —, tobacco mosaic virus can infest, 303.

— —, tobacco rattle virus can infect, 405.

— *tabacum*, see Tobacco.

— *tomentosa*, *N. tomentosiformis*, *N. trigonophylla*, *N. undulata*, and *N. wigandioides*, tobacco rattle virus can infect, 405.

Nidulariaceae, dispersal mechanisms in, 197.

Nigrospora oryzae on maize in S. Africa, 460; breeding against, 370.

— *sphaerica*, inhibition of, by helixin, 620.

[*Nigrospora sphaerica*] on pine in Canada, 412.
— —, spore discharge in, 567.
Nirit, use of, against *Phoma apiicola*, 444; *Venturia inaequalis*, 67, 534; with debena, 444.
2-nitro-*p*-cresol, use of, as a fungicide, 26.
Nitrogen deficiency in lettuce in U.S.A., 307; *Pseudotsuga taxifolia* in U.S.A., 307; *Thuja plicata* in U.S.A., 307. (See also Fertilizers.)
— peroxide injury to plants, 571.
Nitrosophenyl-hydroxydamine, copper salt of, use of, against paint mildew, 136.
4-nitroso-l-*p*-sulphamylphenyl-3,5-dimethylpyrazole, effect of, on *Venturia inaequalis*, 341.
Nockmate water emulsion No. 2, use of, against *Gibberella zeae* on wheat, 549.
No-D-K, use of, as a timber preservative, 310.
Nodulisporium africanum on cellulose acetate film, 208.
Nonnea, *Puccinia dispersa* on, 376.
Norit, use of, with malachite green, 51.
Nowakowskiella elegans, *N. macrospora*, and *N. profusa* in soil in Germany, 142.
N.P. 679, use of, against *Sphacelotheca sorghi* on sorghum, 181.
NP-770, use of, against *Erysiphe polygoni* on bean, 529.
Nuclear division, pathology of, 319.
Nyctanthes arbor-tristis, *Synchytrium nyctanthidis* on, in India, 402.

Oak (*Quercus*), *Chalara quercina* on, in U.S.A., 37, 306, 357, 408, 522; *Ceratostomella* perfect state of, 358; genetics of, 408; legislation against in U.S.A., 228; technique for diagnosing, 357; varietal reaction to, 37, 357, 522.
—, *Cladosporium manoutchrehil* on, in Persia, 354.
—, *Corticium salmonicolor* on, in S. Africa, 460.
—, *Daedalea quercina* on, 409; in Yugoslavia, 347.
—, *Endothia parasitica* on, 463; in Yugoslavia, 638.
—, *Fomes fomentarius* on, in India, 410.
—, — *robustus*, *F. salicinus* f. *densus*, and *F. torulosus* on, in Portugal, 92.
—, *Hypoxylon mediterraneum* on, in Morocco, 409; *Botrytis sylvatica* conidial state of, 409.
—, *Lentinus lepideus*, *Lenzites sepiaria*, and *Merulius tremellosus* on, 409.
—, *Microsphaera querci* on, in Japan, 578.
—, *Nectria* on, in France, 152.
—, *Phoma* on, in France, 152.
—, *Phytophthora cinnamomi* on, in France, 152, (?) 409.
—, *Plagiostoma pustula* on, 89.
—, *Polyporus cuticularis* on, in India, 410; Portugal, 92.
—, — *obtusus*, *P. sulphureus*, and *Polystictus xeranticus* on, in India, 410.
—, *Poria vaporaria* on, 409.
—, *Schizophyllum commune* on, in Greece, 256.
—, *Stereum princeps* on, in India, 409; *S. scytale* synonym of, 409.
—, *Taphrina caerulescens* on, in U.S.A., 37.
—, *Trametes cinnabarina* on, 409.
—, — *dickinsii* on, in India, 410.
Oats (*Avena*), *Alternaria tenuis* on, in Canada, 596.
—, *Aplanobacter hordei* can infect, 180.
—, barley yellow dwarf virus on, in U.S.A., 233.
—, cold injury to, in U.S.A., 235.
—, factory gases injuring, 571.
—, *Fusarium* on, in Canada, 50, 597; Northern Ireland, 593.
—, *Helminthosporium* on, in Canada, 50.
—, — *victoriae* on, in Canada, 50, 52; U.S.A., 180, 235, 379; varietal reaction to, 50, 52, 113, 180, 549.
[Oats,] *Leptosphaeria avenaria* on, in U.S.A., 379.
—, lucerne dwarf virus can infect, 168.
—, manganese deficiency in, 50; in Switzerland, 387; varietal reaction to, 235.
—, *Microthyrium culmigenum* on, in Great Britain, 89.
—, nickel toxicity to, in Scotland, 631.
—, *Puccinia avenastri* and *P. bromoidis* on, in France, 146.
—, — *coronata* on, 372; in Abyssinia, 32; Denmark, 109; Mexico, 372; U.S.A., 180, 235; U.S.S.R., 430; breeding against, 113; control, 430; effect of 2,4-D on, 179; effect of 3-indoloacetic acid on, 179; on yield, 235; factors affecting, 109, 176; physiologic races of, 12, 235, 549; varietal reaction to, 12, 113, 180, 227, 549.
—, — *graminis* on, 278; in Canada, 52; Denmark, 171; Guatemala, 55; Palestine, 146; Portuguese W. Africa, 302; U.S.A., 179, 180; effect of 2,4-D on, 179; physiologic races of, 179, 486, 549; varietal reaction to, 52, 55, 113, 180, 486, 549.
—, *Pyrenophora avenae* on, in Canada, 596; India, 539; Northern Ireland, 593; longevity of, 596; varietal reaction to, 539, 601.
—, *Pythium* on, in Northern Ireland, 593.
—, *Sclerospora macrospora* on, in U.S.A., 379.
—, *Ustilago avenae* on, in Canada, 392, 427; Portuguese W. Africa, 302; Sweden, 108; U.S.A., 178, 180, 392; control, 108, 178, 392, 427, 545; geographical distribution of, 160; physiologic races of, 549; varietal reaction to, 180, 233, 549; viability of, 540.
—, — *kolleri* on, in Canada, 392, 427; U.S.A., 178, 180, 392; control, 178, 392, 427, 540, 545; physiologic races of, 549; varietal reaction to, 180, 233, 549; viability of, 540.
—, zinc deficiency in, 188.
Ochrovena hibiscae proposed as name for yellow vein-mosaic virus of, 6.
Ocotea usambarensis, *Armillaria mellea* on, in Tanganyika Territory, 225.
Octadecyltrimethylammonium pentachlorophenate, effect of, on *Fusarium bulbigenum* var. *lycopersici*, 393.
Octylmercapto-acetic and propionic acids, use of, as fungicides, 27.
Odontoglossum grande, virus disease of, in U.S.A., 491.
Oenothera hookeri, lucerne dwarf virus can infect, 168.
Oidiopsis on *Zizyphus jujuba* in India, 55.
Oidium on *Crotalaria retusa* in India, 492.
— on mangold, control, 563.
— *begoniae* can infect *Oxalis repens*, 329.
— — on *Begonia* in France, 329; Switzerland, 123; U.S.A., 434.
— *chrysanthemi* on *Chrysanthemum* in Great Britain, 384.
— *cinerariae* imperfect state of *Sphaerotheca fusca*, 555.
— *ericinum* on *Erica gracilis* in Switzerland, 148.
— *erysiphoides* on lilac in Yugoslavia, 594.
— *heveae* on *Hevea* rubber in Ceylon, 83, 205, 630; Indonesia, 399; Java, 630; breeding against, 83; control, 205, 206, 630; varietal reaction to, 630.
— *mangiferae* on mango, control, 563.
— *syringae* on lilac in Austria, 552; Great Britain, Spain, and Switzerland, 240; (?) introduced from U.S.A., 240.

Oil, mineral, use of, in preserving bacterial cultures, 313.
Oil palm (*Elaeis guineensis*), bacterial rot of, control, 422.
— —, *Fusarium oxysporum* on, in the Belgian Congo, 282.
—, —, *Helminthosporium* on, in Malaya, 538.
Olea europaea, see Olive.
Oleander (*Nerium oleander*), *Dothidella oleandrina* on, in Spanish Morocco, 577.
—, *Pseudomonas savastanoi* f. sp. *nerii* on, in Greece, 225.
Oliarus atkinsoni transmitting *Phormium tenax* yellow leaf disease, 606.
Olive (*Olea europaea*), *Cercospora cladosporioides* on, in Chile, 354; Italy, 500.
—, *Cycloconium oleaginum* on, in N. Africa, 616; U.S.A., 25.
—, *Fomes torulosus* on, in Portugal, 92.
—, *Fusarium* (?) *microphlyctis* on, in Portugal, 500.
—, *Ganoderma lucidum* on, in Greece, 256.
—, *Gloeosporium olivarum* on, in Portugal, 500.
— leptonecrosis, see Olive progressive decline.
— progressive decline in Italy, (?) Portugal, Sardinia, Spain, and S. America, etiology of, 246; factors affecting, 247; varietal reaction to, 246.
—, *Pseudomonas savastanoi* on, in Italy, 443; U.S.A., 25.
—, *Rosellinia necatrix* on, in Argentina, 338.
— 'shorts' disease, 'shotberry', 'soft nose', and 'split pit' diseases in U.S.A., 25.
Olivea tectonae on teak in Pakistan, 214.
Olpidium agrostidis on turf in U.S.A., 330.
— *brassicae* on cabbage, control, 564.
— — on turf in U.S.A., 330.
Omphalodes and *O. nitida*, *Puccinia dispersa* on, 376, 377.
Oncidium rogersi, virus disease of, in U.S.A., 491.
Onion (*Allium cepa*), *Alternaria porri* on, in Kenya, 173.
—, *Aspergillus niger* on, in Sierra Leone, 476.
—, bacterium on, in Mauritius, 538.
—, *Botryodiplodia theobromae* on, in Sierra Leone, 476.
—, *Botrytis allii* on, in Canada, 529.
—, *Centrospora acerina* can infect, 269.
—, *Colletotrichum circinans* on, in Greece, 256.
—, *Erwinia carotovora* on, in U.S.A., 107; bacteriophage of, 107.
—, *Fusarium* on, in Java, 298.
—, *Peronospora destructor* on, in Brazil, 530; Peru, 208; U.S.A., 268.
—, *Phytophthora parasitica* on, in Southern Rhodesia, 475.
—, *Pseudomonas marginalis* can infect, 165.
—, *Sclerotium cepivorum* on, in Denmark, 172; England, 195; Holland, 477; control, 195.
—, — *delphinii* can infect, 554.
—, *Urocystis cepulae* on, in U.S.A., 4, 99, 228.
— yellow dwarf virus on onion in France, 99; Germany, 369.
— — — — on shallot in Denmark, 172.
Onobrychis sativa, *Ramularia onobrychidis* on, geographical distribution of, 160.
— —, *Sclerotinia trifoliorum* on, in England, 187.
Ononis, Uredinales on, 146.
Oospora in soil in Indonesia, 400.
— *candida* on apple and apple juice in England, 570.
— *favorum* in beehives in Brazil, 488.
— *lactis* on apple in England, 570.
Ophiobolus graminis on *Agropyron* in S. Africa, 548.
— — on barley in England, 170; control, 429.
— — on grasses in S. Australia, 429; role of, in wheat infection, 548.
— — on rye, in S. Africa, 548.
— — on wheat, 58; in England, 170; Holland, 476; S. Australia, 429; Sweden, 103; breeding against, 548; control, 429; factors affecting, 429; varietal reaction to, 548.
— *herpotrichus* on wheat, 58.
— *miyabeanus* on rice in the Belgian Congo, 422; Costa Rica, 372; El Salvador, 302; Greece, 172; Guatemala, 55; India, 294; control, 140, 294, 372, 575; factors affecting, 294; varietal reaction to, 55.
— *zeae* on maize in French Equatorial Africa, 280.
Ophiostoma canum on timber in Sweden, 42; *Blastophagus minor* associated with, 42.
— *clavatum* on pine in Sweden, 42; *Ips acuminatus* associated with, 42.
— *polonicum* on timber in Sweden, 42.
Opium poppy (*Papaver somniferum*), *Dendryphion penicillatum* var. *sclerotiale* on, in Germany, 85.
— —, *Pleospora papaveracea* on, in Denmark, 224; Germany, 85, 257; imperfect states of, 85, 257; studies on, 85, 257; synonomy of, 85.
— —, *Pythium mamillatum* and *P. ultimum* on, in Australia, 459.
Optical instruments, moulds on, in the Panama Canal Zone, 622.
Opuntia ficus-indica, *Fusarium oxysporum* var. *opuntiarum* on, in Sicily, 501.
— *monacantha*, *Bacterium tumefaciens* on, effect of tomato juice on growth of, 481.
Orange (*Citrus aurantium*, *C. sinensis*, etc.), blind pocket psorosis in N. Africa, 63.
— decay, control, 543.
— *Deuterophoma tracheiphila* on, in N. Africa, 63.
—, *Diaporthe citri* and *Diplodia natalensis* on, control, 543.
—, *Elsinoe australis* on, in Bolivia, 182.
— exocortis in Argentina, 382.
—, *Glomerella cingulata* on, in India, 370; Peru, 208.
—, *Hansenula angusta* in juice of, 354.
— leprosis in Argentina, 326; *Tenuipalpus pseudocuneatus* associated with, 326.
—, lithium toxicity to, 114.
—, magnesium deficiency in, in Israel, 383.
—, moulds on, in Morocco, 431.
—, *Penicillium digitatum* and *P. italicum* on, in Algeria and Israel, 603.
—, *Phytophthora* on, effect of thiamin on growth of, 381.
—, — *citrophthora* on, in Argentina, 343; control, 343, 563; study on, 380.
—, — *hibernalis* on, control, 563.
—, — *palmivora* on, in Argentina, 343.
—, — *parasitica* on, in Argentina, 343; Venezuela, 380; control, 343, 380, 563.
—, *Pseudomonas syringae* on, in Italy, 183; U.S.S.R., 622; control, 622.
— psorosis viruses A and B in U.S.S.R., 14.
— quick decline in N. Africa, 63; distinct from lemon collapse, 432.
— scaly-bark psorosis in N. Africa, 63.
—, *Septobasidium pseudopedicellatum* on, in India, 182.
— stem-pitting in Argentina, 182.
— tristeza disease in Argentina, 343; Brazil, 62, 431.

[Orange], virus disease of, in Victoria, 281, 382.
— witches' broom in Brazil, 382.
—, *Xanthomonas citri* on, in Fiji, 551.
— xyloporosis in Argentina, 181; U.S.A., 282.
Orbicula spadicea on timber, 262.
Orchids, anti-fungal secretions from rhizomes of, 74.
—, mosaic virus of, electron microscope study of, 276.
Orchis militaris, fungistatic substance from rhizomes of, 74.
— —, *Rhizoctonia repens* on, 74.
Organol, use of, against *Venturia inaequalis*, 67.
Organo-mercury sulphonate, use of, against *Venturia inaequalis*, 290.
Ornithogalum, *Puccinia hordei* on, in Portugal, specific reaction to, 376.
Orosius argentatus transmitting lucerne witches' broom virus, 125.
Orthex, use of, with wettable sulphurs, 437.
— spreader-sticker, 69.
— —, use of, with Bordeaux mixture, 206.
Orthocide (S.R. 406), use of, 443; against *Botrytis allii*, 341; *B. cinerea* on apple, 190; strawberry, 441; cacao cherelle wilt, 424; *Coccomyces hiemalis* on cherry, 129; *Corticium solani* on *Agrostis palustris*, 284; *Elsinoe veneta* on raspberry, 499; *Phytophthora infestans* on potato, 80; *P. palmivora* on cacao, 374, 424; *Urocystis cepulae* on onion, 4; *Venturia inaequalis*, 54, 67, 189, 341.
— pyrax, use of, against *Urocystis cepulae* on onion, 99.
Ortho-cresol-sulphur resin, use of, as a timber preservative, 156.
Ortho-hydroxyphenylmercuric chloride, use of, against moulds on electronic equipment, 346.
Ortho-nitro-phenol, use of, as a fungicide, 26.
Ortho-phenylphenate, use of, against *Tilletia caries*, 484.
Ortho-phenylphenol, toxicity of, to some fungi, 340.
Oryza sativa, see Rice.
OS 840, see CBP-55.
Osmoplastic and osmosar, use of, as timber preservatives, 310.
Ostropella verruculosa on coffee in the Ivory Coast, 282.
Ox gall, effect of, on actinomycetes and bacteria, 514.
Oxalic acid, formation of, by timber-destroying fungi, 413.
Oxalis corniculatus, *Puccinia sorghi* on, in Argentina, 434.
— *repens*, *Oidium begoniae* can infect, 329.
— *tuberosa*, *Urocystis oxalidis* on, in Peru, 208.
Oxicop, use of, in New Zealand, 247.
Oxyquinoline, use of, against *Botrytis cinerea*, 49; citrus moulds, 431.
— benzoate, effect of, on *Fusarium bulbigenum* var. *lycopersici*, 393.
— sulphate, use of, against *Stereum purpureum* on apple, 287.
Ozonium aurantiacum on timber in Great Britain, 154; mycelial form of *Coprinus*, 154.

P.A.C.A., use of, against *Sclerotinia homoeocarpa* on turf, 609.
Paecilomyces on leather in England, 75.
— *varioti* on cellulose fibres, 569.
Paeonia, see Peony.
Paint, *Aspergillus* on, in U.S.A., 136.
—, — *oryzae* on, control, 136.
—, *Cladosporium* on, 199.
[Paint], moulds in, control, 396.
—, *Penicillium* on, in U.S.A., 136.
—, — *waksmani* on, 199.
—, *Pullularia pullulans* on, in U.S.A., 136.
Pananicrol, use of, against *Myzus persicae*, 348.
Panicum mosaic virus in the Philippines, 119.
— *dinklagei* and *P. laxum*, *Balansia* on, in Sierra Leone, 476.
— *maximum*, *Ustilago heterospora* on, in Africa, 633.
(?) — *miliaceum*, *Helicobasidium mompa* on, immunity from, 546.
— —, *Sphacelotheca destruens* on, geographical distribution of, 160.
Panogen injury to lettuce, 264.
—, use of, against *Alternaria* on turnip and bacteria on bean, 265; *Helminthosporium gramineum* on barley, 178; *Puccinia carthami* on safflower, 459; *Sphacelotheca sorghi* on sorghum, 181; *Tilletia caries* and *T. foetida*, 108, 177, 178; *Ustilago avenae* and *U. kolleri* on oats, 178; as a seed treatment for vegetables, 264.
— DGSV, use of, as a seed treatment for barley and oats, 108.
— K-3, 14–4, and 14–5, use of, as a seed treatment for rye and wheat, 108.
Pansy (*Viola tricolor*), *Sphaerotheca humuli* on, in Holland, 479.
Panus conchatus, antagonism of, to basidiomycetes, 583.
Papaver, *Pleospora papaveracea* on, specific reaction to, 86.
— *cardinale*, *Pleospora papaveracea* on, in Germany, 257.
— *glaucum*, *Pleospora papaveracea* on, in Denmark, 224.
— *somniferum*, see Opium poppy.
Papaw (*Carica papaya*), bunchy top virus in Puerto Rico, 339; transmission of, by *Empoasca papayae*, 339.
—, *Colletotrichum* on, in India, 55.
—, *Corticium solani* on, in India, 501.
—, *Phytophthora cinnamomi* on, in Peru, 25.
—, — *parasitica* on, in Brazil, 339.
—, *Pucciniopsis caricae* on, in Peru, 208.
—, *Pythium aphanidermatum* on, in India, 501.
—, *Sclerotium delphinii* can infect, 554.
Papularia in the air, 504.
Para-acetylaminophenylmercuric acetate, use of, against moulds on electronic equipment, 346.
Para-aminobenzoic acid, effect of, on growth of *Helianthus tuberosus* and *Scorzonera* tissues, 596.
— —, use of, against *Botrytis fabae* on broad bean, 445.
Para-aminophenylmercuric acetate, use of, against moulds on electronic equipment, 346.
Para-aminophenyl sulphamide, effect of, on *Helianthus tuberosus* and *Scorzonera* tissues, 596.
Para-benzoquinones, fluorinated, effect of, on *Alternaria solani* and *Stemphylium sarciniforme*, 193.
Para-chloro, 2-chloroethyl ester of benzenesulphonic acid, use of, as a fungicide, 26.
Para-dichlorobenzene, use of, against *Alternaria humicola* and *Fusarium* on peony, 329.
Para-formaldehyde, use of, as a timber preservative, 465.
Paragerm, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Para-hydroxy-butyl ester of benzoic acid, use of, as a fungicide, 26.

Para-nitrophenol, toxicity of, to fungi attacking *Hevea* rubber, 206.
Parasitism, physiology of, 320, 321.
Paratetranychus citri, *Entomophthora* on, in U.S.A., 116.
Parathion, use of, against aphids, 440; potato leaf roll virus, 170; with DDT, 451.
Para-toluene sulphonylamide, use of, against moulds on electronic equipment, 346.
Parsley (*Petroselinum sativum*), *Septoria petroselini* on, in Denmark, 224.
—, *Stemphylium radicinum* var. *petroselini* on, control, 224.
Parsnip (*Pastinaca sativa*), canker in U.S.A., 416.
—, *Itersonilia* on, in U.S.A., 416.
Parthenocissus tricuspidata, lucerne dwarf virus can infect, 168.
Parzate, use of, against *Botryosphaeria ribis* on avocado pear, 132; *Chaetoseptoria wellmanii* on various plants, 47; *Fusarium dianthi* on carnation, 227; *Phytophthora infestans* on tomato, 35, 226, 542; *Pseudoperonospora cubensis* on watermelon, 542; *Puccinia carthami* on safflower, 459; tomato diseases, 303.
Paspalum conjugatum mosaic virus in the Philippines, 119.
— *dilatatum*, lucerne dwarf virus can infect, 168.
Passalora graminis on *Dactylis glomerata* in S. Africa, 460.
Passion fruit (*Passiflora edulis*), cucumber mosaic virus on, in New S. Wales and Tanganyika Territory, 225.
Pastinaca sativa, see Parsnip.
Pathological resin canals in conifers in Sweden, 582.
Paulownia tomentosa, *Physalospora paulowniae* on, in Japan, 153; *Macrophoma* state of, 153.
— —, *Pythium* on, control, 153.
— — witches' broom virus in Japan and Korea, 359; transmission of, by grafting, 359.
Paxillus panuoides on timber in Great Britain, 154; Portugal, 92.
P.D.A., use of, as a timber preservative, 310.
Pea (*Pisum sativum*), *Aphanomyces euteiches* on, in England, 256.
—, *Ascochyta pinodella* on, in Argentina, 344; Germany, 584, 587; Holland, 471; Tasmania, 3; control, 344, 584; effect of, on yield, 344; spore discharge and germination in, 587.
—, — *pisi* on, in Canada, 268, 528; Denmark, 224; England, 264; Germany, 584; Tasmania, 3; control, 264, 584; effect of antibiotics on, 528; physiologic races of, 268; varietal reaction to, 268.
—, bean yellow dot virus can infect, 266.
—, — — mosaic virus can infect, 535.
—, *Botrytis cinerea* on, in Holland, 471.
—, broad bean mottle virus can infect, 469.
—, clover vein mosaic virus on, comparison of, with Wisconsin pea stunt virus, 98; transmission of, by *Macrosiphum pisi*, 99.
—, *Colletotrichum pisi* on, in Peru, 208.
—, *Corticium solani* on, control, 265.
—, damping-off of, in Holland, 479; control, 247, 365, 479.
— enation mosaic virus on broad bean in Germany, 313.
— — — — on clover in Germany, 312, 313.
— — — — on lentils and lupin in Germany, 313.
— — — — on pea in Germany, 312, 313, 587; control, 313; transmission of, by *Macrosiphum pisi*, 313; to (?) seed, 313.
[Pea enation mosaic virus] on sweet pea and vetch in Germany, 312, 313.
—, *Erwinia* on, in India, 218; host range of, 218.
—, *Erysiphe polygoni* on, in India, 98.
—, factory gases injurious to, 571.
—, *Fusarium* on, 265; U.S.A., 44; association of, with 'St. John's disease', 98; control, 44, 340.
—, — *orthoceras* var. *pisi* on, in India, 539; New Zealand, 528.
—, — *oxysporum* f. *pisi* on, in Holland, 471.
—, — *solani* on, control, 265.
—, — — f. *pisi* on, in Holland, 471.
—, *Heterodera gottingiana* on, in Holland in relation to 'St. John's disease', 98.
—, lettuce mosaic virus can infect, 368.
—, manganese deficiency in, in France, 95.
— mosaic virus on broad bean in Germany, 587.
— — — on clover in Germany, 587; New Zealand, 319.
— — — on *Gladiolus* in New Zealand, 319.
— — — on pea in Germany, 587; Tasmania, 3; factors affecting, 474; varietal reaction to, 3.
— mottle virus on bean, 317, 474.
— — — on pea, 474.
—, *Mycosphaerella pinodes* on, in Argentina, 344; Germany, 584; Holland, 471; Tasmania, 3, 344, 584; losses caused by, 3.
—, *Peronospora viciae* on, in S. Africa, 537.
— 'pimple pod' virus on broad bean and clover in Tasmania, 3.
— — — — on pea in Tasmania, 3.
—, *Pseudomonas pisi* on, in Canada, 54; (?) Tanganyika Territory, 160; Tasmania, 3; use of phages for detection of, 54.
—, *Pythium* on, in Holland, 471; Tasmania, 3; control, 3, 340.
—, — *mamillatum* on, in Australia, 459.
—, — *ultimum* on, in Australia, 459; control, 265.
—, *Rhizoctonia* on, control, 340.
— 'St. John's disease', *Fusarium* associated with, 98; *Heterodera gottingiana* in relation to, 98; should be renamed 'pea cyst eelworm', 98.
—, *Sclerotinia trifoliorum* and *S. trifoliorum* var. *fabae* can infect, 241.
—, seed-borne diseases of, control, 264.
—, *Septoria pisi* on, in Southern Rhodesia, 475; Tasmania, 3.
— streak virus, electron microscope study of, 276.
—, *Uromyces pisi* on, in Palestine, 147.
— wilt virus on bean, 317, 474.
—, Wisconsin pea stunt virus, comparison of, with clover vein mosaic, 98; transmission of, by *Macrosiphum pisi*, 99.
Peach (*Prunus persica*), *Bacterium armeniaca* on, in U.S.S.R., 621.
—, — *tumefaciens* on, in U.S.A., 230; control, 230, 480; transmission of, to aster and *Kalanchoe*, 423.
—, *Clasterosporium carpophilum* on, in Peru, 208; Yugoslavia, 594.
—, factory gases affecting, resistance to, 29.
—, *Fusicladium carpophilum* on, in Peru, 208; control, 72.
—, *Gloeosporium laeticolor* on, in Japan, 128.
—, iron deficiency in, in Italy, 191.
— 'latent complex' viruses in U.S.A., diagnosis of, 127.
—, manganese deficiency in, in Canada, 438.
—, *Microstroma* on, in U.S.A., 245.
— mosaic virus on peach in U.S.A., 105, 228; Yugoslavia, 335; mild strains of, 105.
— — — on plum in Yugoslavia, 613.

[Peach] necrotic ring spot virus in U.S.A., 21.
— phony virus, technique for detecting in roots, 68.
—, plum mosaic virus on, in New Zealand, 336; host range of, 336.
—, *Puccinia pruni-spinosae* on, in Abyssinia and Somaliland, 33; geographical distribution of, 160.
—, *Rhizopus* on, control, 388.
— ring spot virus on cherry, similarity between symptoms of cherry necrotic ring spot virus and, 129.
—, *Sclerotinia fructicola* on, in U.S.A., 388, 389, 612; control, 72, 388, 389, 612.
—, — *laxa* on, in Chile, 354.
—, *Septobasidium pseudopedicellatum* on, in Peru, 208.
—, *Sphaerotheca pannosa* on, in Yugoslavia, 354; control, 248.
—, *Taphrina deformans* on, in Somaliland, 32; U.S.A., 497; Yugoslavia, 594.
—, *Valsa leucostoma* on, in Italy, 21.
—, virus diseases of, in Switzerland, 224; Yugoslavia, 613.
— western X-disease virus on peach, in U.S.A., (?) strain of peach X-disease virus, 22; transmission of, by *Colladonus geminatus*, 22; *Fiebierella florii*, *Keonolla confluens*, and *Scaphytopius acutus*, 22.
—, willow leaf rosette of, in Italy, 191.
— X-disease virus on cherry, varietal reaction to, 69.
— — — on peach in U.S.A., 290, 421; control, 290; technique for diagnosing, 421; western X-disease virus (?) a strain of, 22.
—, *Xanthomonas pruni* on, in U.S.A., 389; control, 72; metabolism of, 128.
— yellow bud mosaic virus on peach in U.S.A., 228.
— — leaf virus in U.S.A., 614; transmission of, by *Colladonus geminatus*, 614.
— zinc deficiency in Italy, 191.
Pear (*Pyrus communis*), *Azotobacter chroococcum* on, in Germany, 127.
—, *Coryneum pirinum* on, in Portugal, 146.
—, *Cylindrocarpon mali* on, in Sicily, 127.
—, *Elsinoe piri* on, in Argentina, 334.
—, *Erwinia amylovora* on, in U.S.A., 242, 333.
—, factory gases causing injury to, in Italy, 29.
—, *Gymnosporangium sabinae* on, in Holland, 477; Turkey, 191; Yugoslavia, 353.
— leaf flecking in England, 558; transmission of, to quince, 558.
—, magnesium deficiency in, in Norway, 559.
—, *Nectria galligena* on, in Chile, 373.
—, *Physalospora piricola* on, 153.
—, *Phytophthora cactorum* on, factors affecting, 243.
—, *Podosphaera leucotricha* on, in U.S.A., 242.
—, raspberry white root rot can infect, 440.
—, *Schizophyllum commune* on, in Greece, 256.
—, *Septobasidium pseudopedicellatum* on, in Peru, 208.
— stony pit virus in Holland, 477.
— storage scald in U.S.A., 242.
— veinbanding in England, 558; transmission of, to quince, 558.
—, *Venturia pirina* on, in Austria, 536; Belgium, 126; England, 189; Holland, 477; S. Australia, 20; U.S.A., 497; Yugoslavia, 594; control, 20, 126, 242, 477, 497; factors affecting, 536; nutrition of, 341.
—, *Verticillium dahliae* on, in Holland, 477.
—, zinc deficiency in, in Holland, 494.
Pecan (*Carya pecan*), *Cladosporium effusum* on, control in U.S.A., 541.
—, *Elsinoe randii* on, control, 541.
Pectate gel, action of phytopathogenic bacteria on, 8.
Pectinase from fungi, 623.
Pelargonium hortorum, *Bacterium tumefaciens*, *Botrytis cinerea*, *Corynebacterium fascians*, leaf curl virus, and *Pythium debaryanum* on, in England, 386.
— —, *Verticillium albo-atrum* on, in U.S.A., 385.
— *zonale*, *Bacterium tumefaciens* on, effect of penitalin on, 175.
Peltosphaeria canadensis on pine in Portugal, 301.
Penicillin, review of literature on, 345, 621.
Penicillium, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271.
—, *Blakeslea* induced to sporulate by, 136.
— in the air, 504; China, 134; India, 567.
— in flour in U.S.A., 345.
— in soil in England, 142, 297; Germany, 296.
— on apple in Denmark, 559; England, 570.
— on beet in Great Britain, 415.
— on building materials in England, 507.
— on cork disks in New Zealand, 346.
— on cotton textiles in U.S.A., 606.
— on maize, stored, in U.S.A., 602.
— on paint in U.S.A., 136.
— on rice in India, 505.
— on timber in Sweden, 42.
— on tomato in England, 222.
— on vegetable seeds, 265.
— on vine in Switzerland, 316.
— on wheat in U.S.A., 112.
— on wood pulp in Finland, 155.
—, spore dispersal in, 251.
—, use of, against *Tilletia caries*, 234; in testing fungicides, 27.
— *albidum*, production of albidin by, 198.
— *baarnense* in soil in England, 297.
— *brevi-compactum*, antagonism of, to fungi, 621.
— (?) — on plaster walls, 198.
— —, toxicity of albidin to, 198.
— *bulliardum* on cotton textiles, 506.
— *citrinum*, effect of rimocidin on, 395.
— — on cellulose fibres, 569.
— —, use of, in testing fungicides, 26.
— *clavariiforme*, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271; *Venturia inaequalis*, 244.
— *claviforme*, use of, against *Tilletia caries*, 234.
— *commune* on cotton textiles, 506.
— — on rice, 458.
— *conditeanum* on wood pulp in Norway and Sweden, 346.
— *crustosum* in apple juice in England, 570.
— *cyclopium* in sodium carboxymethylcellulose solutions in Sweden, control, 345.
— — var. *album* on banana, 208.
— *digitatum*, on citrus, 431.
— — on lemon in Israel, 603.
— — on orange in Algeria and Israel, 603.
— — on shaddock in Israel, 603.
— —, toxicity of albidin to, 198; fungocin to, 395; 4-*sec*-butylphenol, 2, 4, 5-trichlorophenol, and *o*-phenylphenol to, 340.
— *expansum* on apple in Denmark, 66, 559; Norway, 244; control, 559, 610; handling in relation to, 243; toxicity of albidin to, 198.
— *flavo-cinereum*, production of fat by, 252.
— *frequentans* on leather in England, 75.
— — on plaster walls, 198.
— — on rice in India, 505.
— —, physiology of, 505.

[*Penicillium*] *fumiculorum* in sodium carboxymethylcellulose solutions in Sweden, control, 345.
— *gladioli*, toxicity of albidin to, 198.
— '*glaucum*', resistance of, to low temperatures, 28.
— *helicum* in soil in England, 208.
— *implicatum* on plaster walls, 198.
— *italicum*, on citrus, control, 431.
— — on lemon in Israel, 603.
— — on orange in Algeria and Israel, 603.
— — on plaster walls, 198.
— — on shaddock in Israel, 603.
— —, production of penitalin by, 175.
— —, toxicity of fungicides to, 392; fungocin to, 395; thiram to, 193.
— *javanicum*, production of fat by, 252.
— *luteum* in soil in England, 297.
— — on electrical insulating tapes, 136.
— — on rice in India, 505.
— —, physiology of, 505.
— —, use of, in testing fungicides, 29.
— *melinii* on stored wheat in Canada, 599.
— *nigricans* on cotton textiles, 506.
— *notatum* in sodium carboxymethylcellulose in Sweden, control, 345.
— —, toxicity of helixin to, 620; pentachlorophenoxyacetic acid to, 203; rimocidin to, 395.
— *oxalicum*, production of fat by, 252.
— *patulum*, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271; *Venturia inaequalis*, 244.
— —, production of clavacin by, 449.
— *piscarium*, production of fat by, 252.
— *purpurogenum*, physiology of, 505.
— *ramigenum* on cotton textiles, 506.
— *roqueforti* on wood pulp in Norway and Sweden, 346.
— —, toxicity of *Bacillus subtilis* to, 621; peroxyacetic acid to, 637.
— *rubrum* on cellulose fibres, 569.
— *rugulosum* on leather in England, 75.
— *spiculisporum* on leather, 208; in England, 75.
— *spinulosum* in apple juice in England, 570.
— —, production of fat by, 252.
— *variabile* on cellulose fibres, 569.
— *vermiculatum* on cellulose fibres, 569.
— *viride-dorsum* on stored wheat in Canada, 599.
— *viridicatum* in apple juice in England, 570.
— *waksmani* on cement and paint, 199.
— — on plaster walls, 198.
— *wortmanni* on leather in England, 75.
Peniophora gigantea, antagonism of, to *Fomes annosus*, 640.
— — on timber in Great Britain, 154.
Penitalin, effect of, on *Bacterium tumefaciens*, 175.
Pennisetum, *Puccinia penniseti* on, geographical distribution of, 160.
— *clandestinum*, lucerne dwarf virus can infect, 168.
— *hohneckeri*, *Tilletia pennisetina* on, in India, 147.
— *purpureum*, *Piricularia* on, in Malaya, 538.
Pentachlorobenzoic acid, effect of, on bean growth, 529.
Pentachloronitrobenzene, use of, as a fungicide, 26.
Pentachlorophenate, use of, against fungi on electrical equipment, 29.
Pentachlorophenol, estimation of, in treated wood, 216.
—, use of, against moulds on paints, varnishes, and lacquers, 396; as a timber preservative, 2, 94, 154, 156, 216, 310, 311, 584.
[Pentachlorophenol], lauryl ester of, effect of, on *Venturia inaequalis*, 341.
Pentachlorophenoxyacetic acid, toxicity of, to *Actinomyces scabies* and *Penicillium notatum*, 203.
2:3:4:5:6 pentachlorophenoxyacetic acid and 2:3:4:5:6 pentachlorophenoxyisobutyric acid, use of, against *Botrytis cinerea* and *B. fabae* on broad bean, 249.
Peony (*Paeonia*), *Alternaria humicola* on, in U.S.A., 329.
—, *Ascochyta paeoniae* on, in France, 606.
—, *Botrytis paeoniae* on, in England, 491; France, 606.
—, *Fusarium* on, in U.S.A., 329.
— mosaic virus in England, 491.
—, (?) tomato spotted wilt virus on, in England, 491.
Peppermint (*Mentha piperita*), *Puccinia menthae* on, in U.S.A., 142, 351.
—, *Sphaceloma menthae* on, in U.S.A., 351.
—, use of, in controlling *Plasmodiophora brassicae*, 43.
—, *Verticillium albo-atrum* on, in U.S.A., 351, 386.
—, — — var. *menthae* on, in U.S.A., 576.
—, — *dahliae* on, in Southern Rhodesia, 475.
p.e.p.s., use of, with zineb, 236.
Peranabrus scabricollis, *Beauveria* on, in the Pacific Northwest, 116.
Perchloromethyl mercaptan fungicides, 443.
Perenox, use of, against *Alternaria dauci* on carrot, 563; *Ascochyta imperfecta* on lucerne, 52; *Cercospora cruenta* and *Colletotrichum lindemuthianum* on *Phaseolus radiatus* and *P. mungo*, 370; *Diplodia natalensis*, 563; *Exobasidium vexans* on tea, 355, 517, 518; *Glomerella cingulata* on orange, 370; *Ophiobolus miyabeanus* on rice, 294; *Phytophthora citrophthora* on citrus, 563; *P. colocasiae* on *Colocasia*, 54; *P. hibernalis* on citrus, 563; *P. infestans* on potato, 370, 540, 572; *P. palmivora* on cacao, 232; *P. parasitica* on citrus, *Puccinia antirrhini* on *Antirrhinum*, and *Sphaerotheca pannosa* on rose, 563.
Pergandeida craccae transmitting bean yellow mosaic virus, 370.
— *cytisorum* transmitting *Dahlia* mosaic virus, 369.
Periconia pycnospora in wheat rhizosphere, 634.
Pericystis alvei on bees in Brazil, 488.
— *apis* on bees in Brazil, 488; England, 256.
Peridermium appalachianum on pine in U.S.A., 464.
— *brevius* on pine in India, 411; renamed *Coleosporium barclayense*, 411.
— *indicum* synonym of *Cronartium ribicola* f. *indica*, 410.
— *pini* on pine in Germany, 306.
Permatox 10S, use of, against *Endoconidiophora virescens* on timber, 41.
Peroneutypa multistromata on coffee in the Ivory Coast, 282.
Peronospora antirrhini on *Antirrhinum* in U.S.A., 553; geographical distribution of, 160.
— *destructor* on onion in Brazil, 530; Peru, 208; U.S.A., 268.
— — on shallot in Holland, 478; U.S.A., 268.
— *effusa* on spinach, 100.
— *jacksonii* on *Mimulus guttatus* in U.S.A., 149.
— *manshurica* on soy-bean, 458; in Yugoslavia 367; control, 529; factors affecting, 529;

genetics of, 45; physiologic races of, 45; varietal reaction to, 529.
[*Peronospora*] *matthiolae* on *Matthiola* in Denmark, 172.
— *parasitica* on cabbage in Mauritius, 538; U.S.A., 541; control, 541, 564.
— — on cauliflower in U.S.A., 541.
— *pulveracea* on *Helleborus niger* in Holland, 123.
— *sparsa* on rose in U.S.A., 608.
— *tabacina* on tobacco in Canada, 150; U.S.A., 89, 150, 226; losses caused by, 226.
— *trifoliorum* on lucerne in Southern Rhodesia, 475.
— *trigonella* on *Trigonella foenum-graecum* in Italy, 514.
— *viciae* on pea in S. Africa, 537.
Peronosporaceae, list of, in the Pacific Northwest, 89.
Peroxyacetic acid, use of, against moulds on tomato, 637.
Persea americana, see Avocado pear.
Persimmon (*Diospyros kaki* and *D. virginiana*), coal tar fumes causing injury to, in Italy, 29.
—, *Phomopsis diospyri* on, in Italy, 23.
Pest control products, recommended common names for, 562.
Pestalotia in the air, 504.
— on equipment and textiles, 135.
— *cinnamomi* on *Cinnamomum tamala* in India, 86.
— *palmarum* on *Hevea* rubber in Indo-China, 206.
— *psidii* on guava in India, 390.
— *theae* on tea in Somaliland, 33.
Pestalotiae, number of species in, 227.
Pestox 3, use of, against beet virus yellows, 159; *Capitophorus fragariae*, 68; potato leaf roll virus, 170.
Petriella asymmetrica in soil in Northern Ireland, 208.
— — on tomato in England, 222.
Petroselinum sativum, see Parsley.
Petunia, potato dwarf shrub virus can infect, 398.
—, toxicity of formaldehyde to, 554.
—, turnip mosaic virus can infect, 363.
— *hybrida*, red currant virus ring spot can infect, 245.
Peucedanum graveolens, see Dill.
Peyronellaea, taxonomy of, 492.
— *glomerata* on apple in Italy, 495; synonymy of, 495.
— *prunicola* on lemon in Italy, 487.
— *veronensis* synonym of *P. glomerata*, 495.
Pezicula, taxonomy of, 461.
— *cinnamomea* on alder, 516.
— *crataegi* on apple in Chile, 373.
Phacidiella discolor on apple in Holland, 477; Norway, 244.
Phaeocryptopus gaeumanni on *Pseudotsuga taxifolia* in Germany, 534.
Phaeolus manihotis on *Cassia siamea* in the Gold Coast, 311.
Phagus pruni, bacteriophage of *Xanthomonas pruni*, 423.
Phakopsora fici-elasticae on *Ficus elastica* in India, 88.
— *fici-erectae* on mulberry in Formosa and Japan, 402.
— *sojae* on soy-bean, 458.
Phalaenopsis, *Bacterium cattleyae* on, in U.S.A., 186.
Phalaris minor, lucerne dwarf virus can infect, 168.
[*Phalaris minor*], *Pyrenophora avenae* on, in India, 539.
Pharalis tanaceti transmitting cucumber mosaic virus, 369.
Phaseolus acutifolius, bean yellow dot virus can infect, 266.
— *angularis*, *Ascochyta phaseolorum* and *Cercospora canescens* on, 458.
— —, *Chaetoseptoria wellmanii* on, in Costa Rica, 47.
— —, *Colletotrichum phaseolorum* on, mosaic of, *Phyllosticta phaseolina*, *Sphaerotheca fuliginea*, and *Uromyces appendiculatus* on, 458.
— *aureus*, *Chaetoseptoria wellmanii* on, in Costa Rica, 47.
— —, *Fusarium* on, in India, 258.
— *lunatus*, *Ascochyta* on, in U.S.A., 365.
— —, bean yellow dot virus can infect, 266.
— —, *Isariopsis griseola* on, 3.
— —, *Phytophthora phaseoli* on, in U.S.A., 44, 366.
— —, *Rhizoctonia* (?) *microsclerotia* can infect, 367.
— *multiflorus*, see Bean, Runner.
— *mungo*, bean yellow dot virus can infect, 266.
— —, *Cercospora cruenta* and *Colletotrichum lindemuthianum* on, in India, 370.
— *radiatus*, *Cercospora cruenta* and *Colletotrichum lindemuthianum* on, in India, 370.
— *vulgaris*, see Bean, French and Runner.
Phenanthraquinone, fungicidal properties of, 340.
Phenazine, toxicity of, to *Sclerotinia fructicola* and *Stemphylium sarciniforme*, 340.
Phenodor X, use of, against citrus fruit decay, 543.
Phenol, effect of, on *Phagus pruni*, 423.
—, chlorinated, use of, as seed treatment for groundnut and pea, 340.
Phenylmercuric-*o*-benzoic sulphamide, use of, against fungi on electrical equipment, 29.
Phenylmercuric-*o*-benzoic sulphimide, use of, against moulds on electronic equipment, 346.
Phenylmercuric phthalate, use of, against moulds on electronic equipment, 346.
— saccharinate, use of, against fungi on electrical insulating tapes, 136.
— salts, use of, against fungi on electrical equipment, 29.
Phenyl mercury acetate, use of, against fungi in wood pulp, 155, 346; *Fusarium dianthi* on carnation, 227; moulds in sodium carboxymethylcellulose solution, 345; *Tilletia caries*, 565; *Venturia inaequalis*, 611; as a wood pulp preservative, 74.
— — butyrate, use of, as a fungicide, 26.
— — chloride, use of, against apple rot, 610; *Tilletia caries*, 565; *Venturia inaequalis*, 341, 611.
— — compounds, use of, against *Venturia inaequalis*, 611.
— — oleate, use of, as a timber preservative, 154, 311.
— — propionate, use of, as a fungicide, 26.
— — salicylate, use of, against *Tilletia caries*, 565.
— — triethanol ammonium lactate, use of, against *Venturia inaequalis*, 244.
— thiohydantoic acid, copper and mercury complexes of, use of, against *Pythium ultimum* on radish, 51.
Phialea acuum on pine, 516.
Phialophora in the air, 504.
— on timber, 262.
— on wood pulp in Finland, 155.

[*Phialophora*] *goidanichii* on apple in Italy, 494.
— *pedrosoi* can infect *Platysamia cecropia*, 116.
— *richardsiae* on wood pulp, effect of bacterium culture filtrates on, 155.
Phleum pratense, *Calonectria nivalis* on, in Finland, 556.
— —, copper and iron deficiency in, 188.
— —, lucerne dwarf virus can infect, 168.
— —, manganese deficiency in, 188.
— —, *Puccinia graminis* on, 278, 330.
— —, *Typhula*, *T. borealis*, and *T. itoana* on, in Finland, 556.
— —, *Uromyces phleimichelii* on, in France, 209.
— —, zinc deficiency in, 188.
Phlox, *Chrysanthemum* mosaic virus can infect, 239.
—, cucumber mosaic virus on, in U.S.A., 290.
—, virus disease of, in England, can infect cucumber, 238.
— *drummondii*, cucumber mosaic virus on, in U.S.A., 273.
— —, *Septoria phlogis* on, in Holland, 478.
Phlyctochytrium in soil in Germany, 142.
Phoenix dactylifera, see Date palm.
Pholiota adiposa on *Acer* in Canada, 51.
— *destruens* on cottonwood in Canada, 51.
— *mutabilis*, antagonism of, to basidiomycetes, 583.
— —, culture of, 93.
— *spectabilis*, antagonism of, to basidiomycetes, 583.
— — on *Acer* in Canada, 51.
— *squarrosa*, antagonism of, to basidiomycetes, 583.
Phoma, antagonism of, to *Botrytis cinerea*, 270.
— in the air, 504.
— on apple in Norway, 244.
— on beet, 265; in Denmark, 172.
— on coffee in Kenya, 173.
— on flax in Northern Ireland, 593.
— on oak in France, 152.
— on plaster walls, 198.
— on potato in Northern Ireland, 593.
— on turnip, 265.
— on wheat, 58.
— *alternariaceum* synonym of *Peyronellaea glomerata*, 495.
— *anethi* on dill in Denmark, 172, 224.
— *apiicola* on celery, 269; control, 444.
— *betae* on beet in Denmark, 224; Great Britain, 264, 415; control, 264, 266.
— *destructiva* on tomato in Israel, 362; Queensland, 259; control, 259, 542; varietal reaction to, 542.
— *glomerata* synonym of *Peyronellaea glomerata*, 495.
— *glumarum* on rice, 458.
— (?) *hibernica* on cement, 199.
— *kok-saghyz* on *Taraxacum kok-saghyz* in U.S.S.R., 84.
— *lingam* on *Brassica* in Holland, 478.
— — on Brussels sprouts in Holland, 478.
— — on cabbage in Kenya, 414; U.S.A., 96; U.S.S.R., 157, 158, 414; transmission of, by *Murgantia histrionica*, 157.
— — on crucifers in Puerto Rico, 362.
— *pigmentivora* on cement, 199.
— *pomi* on apple, control, 72.
— (?) *radicis* on strawberry in U.S.A., 562.
— *richardiae* synonym of *Peyronellaea glomerata*, 495.
— *terrestris* on strawberry in U.S.A., 562.
— *theicola* on tea in Somaliland, 33.
[*Phoma*] *zeicola* on maize in French Equatorial Africa, 281.
Phomopsis on *Acacia melanoxylon* in India, 465.
— on birch in Canada, 51, 52.
— on *Camellia* in U.S.A., 541.
— on poplar in U.S.A., 639.
— *anonae* on *Annona cherimolia* in Spain, 577.
— *asparagicola* on *Asparagus plumosus* in Spain, 577.
— *bougainvilleae* on *Bougainvillea* in Portugal, 301.
— *cydoniae* on loquat in Portugal, 301.
— *dauci* on carrot in Holland, 99, 163.
— *diospyri* on persimmon in Italy, 23.
— *pseudotsugae* on larch in Holland, 360.
— *vepris* on *Rubus* in Spanish Morocco, 577.
— *vexans* on eggplant in Mauritius, 538.
Phoradendron flavescens var. *macrophylla*, *Protocoronospora phoradendri* on, in U.S.A., 38; renamed *Kabatiella phoradendri*, 38.
Phormium tenax yellow leaf disease in New Zealand, 319, 606; (?) due to a virus, 319; transmission of, by *Oliarus atkinsoni*, 606.
Phosphorus compounds in relation to 'false' browning and *Melampsora lini* on flax, 117.
— deficiency in lemon in U.S.A., 62; lettuce and *Thuja plicata* in U.S.A., 307; tobacco in Southern Rhodesia, 475.
Photinia arbutifolia, lucerne dwarf virus can infect, 168.
— *villosa*, *Verticillium dahliae* on, in Holland, 478.
Phragmidium mucronatum on rose in Portuguese W. Africa, 302; U.S.S.R., 608.
Phycomycetes in soil in Germany, 142.
Phygon, injury to apple, 559.
—, toxicity of, to *Fusarium culmorum*, 223.
—, use of, against *Botrytis cinerea* on apple, 190; cacao cherelle wilt, 424; damping-off of bean, 479; papaw, 501; pea, 479; *Elsinoe veneta* on raspberry, 69, 499; *Phytophthora cryptogea* on tomato, 522; *P. palmivora* on cacao, 374, 424; *Sclerotinia fructicola* on peach, 389; *Sphacelotheca sorghi* on sorghum, 181; sugar-cane seed piece decay, 299; *Tilletia caries* and *T. foetida*, 178; *Venturia inaequalis*, 54, 496, 559; as a seed treatment for cotton, 422; rice, 140; soybean, 587; in foodstuffs, 501.
— XL, use of, against *Alternaria solani*, *Cladosporium fulvum*, and *Phoma destructiva* on tomato, 542; *Phytophthora infestans* on tomato, 542, 580; *Pseudoperonospora cubensis* on watermelon, 542; *Puccinia carthami* on safflower, 459; *Stemphylium solani* on tomato, 542; *Venturia inaequalis*, 189; as a seed treatment for pea, 365.
Phyllachora graminis on turf (?) in Holland, 476; U.S.A., 331.
— *sylvatica* on turf in U.S.A., 331.
Phyllactinia corylea on *Cornus mas* in Yugoslavia, 594.
— *suffulta* on *Asclepias syriaca* in Switzerland, 148.
Phyllocoptruta oleivorus causing citrus 'toasting' in Argentina, 326.
Phyllostachys, see Bamboo.
Phyllosticta on soy-bean in U.S.A., 416.
— *antirrhini* on *Antirrhinum majus* in Mauritius, 538.
— *multiformis* on lettuce in Italy, 530.
— *phaseolina* on *Phaseolus angularis*, 458.
— *sojaecola* on soy-bean in U.S.A., 470.
— *theifolia* on tea in Japan, 258.
— *zeae-maydis* on maize in French Equatorial Africa, 280.

Physalis angulata, red currant virus ring spot can infect, 245.
— *floridana*, potato leaf roll on, in Germany, 369; transmission of, by *Rhopalomyzus ascalonicus*, 369.
— *heterophylla*, *P. turbinata*, and *P. virginiana*, potato virus Y on, in U.S.A., 293.
Physalospora baccae on vine, 153.
— *juglandis* on walnut, 153.
— *miyabeana* on *Salix*, *S. alba*, and *S. purpurea* in Holland, 478.
— *obtusa* on apple in England, 190; effect of sorbose on, 137.
— *paulowniae* on *Paulownia tomentosa* in Japan, 153; *Macrophoma* state of, 153.
— *piricola* on pear, 153.
— *tucumanensis* on maize in French Equatorial Africa, 281.
— — on sugar-cane in Formosa, 299, 300; India, 87, 298, 400; Mexico, 375; U.S.A., 298, 300; culture of, 299, 400; transmission of, by soil, 87; varietal reaction to, 143, 298, 300, 539.
— *zeae* on maize in French Equatorial Africa, 281.
— *zeicola* on maize in French Equatorial Africa, 281.
Physarum on *Buchloe dactyloides* in S. Australia, 344.
— on grasses and lucerne in S. Australia, 344.
Physoderma graminis on *Agropyron* in U.S.A., 285, 330.
Phytohormones, effect of, on germination of rust uredospores, 72.
Phytolacca, cucumber mosaic virus on, 221.
'Phytoncides', use of, against *Xanthomonas campestris* on cabbage, 157.
Phytopathology, First Latin-American Congress on, 370.
—, South American book on, 343.
—, see also Plant diseases.
Phytophthora, control, 26.
— in soil, 394.
— on avocado pear in S. Africa, 537.
— on cherry, 69.
— on *Cinchona ledgeriana* in Puerto Rico, 207.
— on citrus in U.S.A., 236.
— on *Hevea* rubber, 631; in Indonesia, 399.
— on orange, effect of thiamin on growth of, 381.
— on *Prunus mahaleb*, 69.
— on sugar-cane in U.S.A., 298.
— *cactorum* can infect *Melilotus suaveolens*, 493.
— —, growth requirements of, 199.
— — in soil, 394.
— — on apple in New Zealand, 20; Norway, 244.
— — on chilli and cotton in El Salvador, 302.
— — on gooseberry and hops in New Zealand, 20.
— — on *Melilotus* in Canada, 50, 493.
— — on pear, factors affecting, 243.
— — on safflower in U.S.A., 206.
— — var. *applanata* on *Hibiscus rosa-sinensis* and *H. schizopetalus* in U.S.A., 434.
— *cambivora* on *Casuarina equisetifolia* in Mauritius, 537.
— — on chestnut in Corsica, 39; France, 39, 406; Spain, 40.
— *capsici* on chilli, in U.S.A., 274.
— *cinnamomi* can infect *Rhododendron ponticum* and *Taxus cuspidata*, 152.
— — in soil in U.S.A., 41, 553.
— — on avocado pear in Mexico, 289; Peru, 25, 192, 616; U.S.A., 238; U.S.A., intercepted from Costa Rica, 289; control, 192, 616; factors affecting, 338.
[*Phytophthora cinnamomi*] on *Camellia* in U.S.A., 541, 553.
— — on *Chamaecyparis lawsoniana* in U.S.A., 152, 553.
— — on chestnut, 152; in Corsica, 39; France, 39, 406; Spain, 40.
— — on *Cinchona*, *C. ledgeriana*, and *C. succirubra* in India, 634.
— — on *Cupressus sempervirens* var. *glauca* in U.S.A., 553.
— — on deodar, *Libocedrus decurrens* and *Myrtus compacta* in U.S.A., 553.
— — on oak in France, 152, (?) 409.
— — on papaw in Peru, 25.
— — on pine in U.S.A., 41, 360.
— — on *Platanus orientalis* in Argentina, 152.
— — on *Thuja compacta* in U.S.A., 553.
— — on yew in U.S.A., 152.
— —, substance stimulating sexual reproduction in, 338.
— —, use of, in testing fungicides, 27.
— *citrophthora*, effect of fungocin on, 395; *Mucor spinosus* on, 431.
— — in soil in El Salvador, 302.
— — on citrus in Argentina, 326; Israel, 604; Mauritius, 538.
— — on grapefruit, control, 563.
— — on orange in Argentina, 343; control, 343, 563; study on, 380.
— *colocasiae* on *Colocasia* in India, 54.
— *cryptogea* on tomato in New Zealand, 522; Scotland, 213.
— *drechsleri*, effect of fungocin on, 395.
— — on safflower in U.S.A., 206, 351, 632.
— —, substance stimulating sexual reproduction in, 339.
— *erythroseptica* on potato in Yugoslavia, 626.
— *fragariae* on strawberry in Canada, 103; Great Britain, 23, 441; New Zealand, 70; U.S.A., 71; control, 71, 103; factors affecting, 23, 70; physiologic races of, 70; varietal reaction to, 70, 441.
— *hibernalis* on citrus in Israel, 604.
— — on grapefruit and orange, control, 563.
— *infestans* on *Cyphomandra betacea*, 636.
— — on eggplant in Israel, 361.
— — on potato in Argentina, 343; Assam, 370; Brazil, 511; Canada, 52, 77, 226; Chile, 572; Colombia, 254; Germany, 138, 139; Great Britain, 77, 171, 253, 625; Greece, 30; Holland, 476, 477; India, 54, 540; Indonesia, 80; Israel, 361; Mexico, 373; Mozambique, 77, 511; Northern Ireland, 593; S. Africa, 537; Sweden, 78, 80; U.S.A., 204, 226, 392, 628; Yugoslavia, 349; bacterial soft rot associated with, 253; breeding against, 77, 78, 138, 139, 254, 349, 511, 626; control, 26, 30, 52, 54, 80, 171, 247, 343, 370, 373, 392, 476, 540, 572, 573; effect of insecticides on resistance to, 204; effect of, on yield, 540; of potato viruses X and Y on, 454; factors affecting, 30, 171, 572; forecasting outbreaks of, 204; leaf penetration by, 398; losses caused by, 30, 343, 349, 572; physiologic races of, 138, 151, 349, 537; spray warning service against, 77; study on, 78; testing tops for resistance to, 78, 80; varietal reaction to, 77, 79, 138, 139, 254, 349, 398, 510, 511, 537, 573, 628.
— — on *Solanum*, breeding against, 254; specific reaction to, 254.
— — on *Solanum andigenum*, resistance to, 139.
— — — *demissum*, resistance to, 138.
— — on *Solanum nigrum*, 636.
— — on tomato in Brazil, 580; Canada, 226,

636; Channel Islands, 635; Germany, 584; Israel, 361; Jamaica, 8; Mexico, 372; Mozambique, 511; Northern Ireland, 593; S. Africa, 537; U.S.A., 35, 289, 303, 392, 406, 520, 636; breeding against, 636; control, 35, 226, 247, 303, 372, 392, 444, 542, 564, 580, 584, 635; factors affecting, 226, 303, 406; leaf penetration by, 398; physiologic races of, 151; varietal reaction to, 542, 636.
[*Phytophthora*] *lateralis* on *Chamaecyparis lawsoniana* in U.S.A., 152.
— *meadii*, growth requirements of, 199.
— *megasperma* in soil, 394.
— *palmivora* on cacao, 538; (?) in Ceylon, 9; Costa Rica, 374, 424, 425; Ecuador, 56; Gold Coast, 426; (?) Java, 9; New Guinea, 9; West Africa, 232; control, 232, 374, 424, 425.
— — on citrus in Argentina, 326.
— — on *Hevea* rubber in Indo-China, 206; Indonesia, 399; Malaya, 538.
— — on *Hibiscus rosa-sinensis* and *H. schizopetalus*, 434.
— — on orange in Argentina, 343.
— *parasitica* can infect safflower, 207.
— —, growth requirements of, 199.
— — on *Araucaria excelsa* in Peru, 208.
— (?) — on bean in India, 99.
— — on citrus in Argentina, 326; El Salvador, 302; India, 183; Israel, 604.
— — on grapefruit in Venezuela, 380; control, 380, 563.
— — on lemon in Venezuela, 380.
— — on onion in Southern Rhodesia, 475.
— — on orange in Argentina, 343; Venezuela, 380; control, 343, 380, 563.
— — on papaw in Brazil, 339.
— — on pineapple in El Salvador, 302.
— — on potato in Venezuela, 380.
— — on tomato in Scotland, 213; Venezuela, 380; control, 213, 227.
— — on *Vinca rosea* in Venezuela, 380.
— — var. *nicotianae*, on tobacco in U.S.A., 33, 212; breeding against, 579; control, 213; distribution of, in U.S.A., 33; effect of, on water movements, 461; growth requirements of, 199; losses caused by, 212; varietal reaction to, 212, 579.
— — var. *piperina*, growth requirements of, 199.
— *phaseoli* on *Phaseolus lunatus* in U.S.A., 44, 366.
— *porri* on *Campanula persicifolia* in England, 65.
— *richardiae*, growth requirements of, 199.
— *syringae* on lemon in Greece, 256.
— *verrucosa* on tomato in England, 256; Scotland, 213.
Picea, see Spruce.
Pichia, taxonomy of, 354.
Picralima nitida, *Calonectria rigidiuscula* can infect, 232.
Pigeon pea (*Cajanus cajan*), *Fusarium udum* on, varietal reaction to, 540.
— —, *Uromyces dolicholi* on, geographical distribution of, 160.
— —, *Xanthomonas cajani* on, in India, 6.
Pileolaria terebinthi on pistachio nut in Morocco intercepted from U.S.A., 616.
— — on *Pistacia palaestina* in Palestine, 147.
Pine (*Pinus*), *Alternaria* on, in Canada, 412; U.S.S.R., 357.
—, *Armillaria mellea* on, in Tanganyika Territory, 225.
—, *Botrytis cinerea* on, 582; Chile, 354.
—, *Cenangium ferruginosum* on, culture of, 516.
[Pine], *Chrysomyxa abietis* on, in Sweden, 147.
—, *Corticium galactinum* on, in Canada, 52; geographical distribution of, 525.
—, — *odoratum* on, in Canada, Czechoslovakia, and Sweden, 525.
—, — *solani* on, in Argentina, 411; Canada, 412; Japan, 153.
—, *Cronartium himalayense* in India, 524.
—, — *ribicola* on, in Canada, 51.
—, — — f. *indica* on, in India, 410; *Peridermium indicum* synonym of, 410.
—, *Crumenula abietina* on, in Holland, 516.
—, *Cucurbitaria pithyophila* on, in U.S.A., 384.
—, damping-off of, in Canada, 412; U.S.A., 192.
—, *Diplodia pinea* on, in Argentina, 1; previously recorded as *Sphaeropsis pinicola*, 1.
—, *Fomes annosus* on, in Denmark, 412; England, 262; Norway, 92.
— forking in roots of, mycorrhiza in relation to, 347.
—, *Fusarium* on, in U.S.A., 307; U.S.S.R., 357; association of, with nematodes, 307.
—, — *arthrosporioides*, *F. avenaceum*, and *F. bulbigenum* var. *blasticola* on, in Argentina, 411.
—, — *oxysporum*, *F. scirpi* var. *acuminatum*, and *F. solani* on, in Canada, 412.
—, *Gibberella zeae* on, in Argentina, 411.
—, *Hypoderma mexicanum* on, in Mexico, 215.
—, *Lenzites sepiaria* on, in N. America, 637.
—, *Leptographium* on, pathogenicity of, 306.
— little leaf disease in U.S.A., associated with *Phytophthora cinnamomi*, 360.
—, *Lophodermium pinastri* on, in Alaska, 401; France, 209; Holland, 516.
—, *Macrophomina phaseoli* on, in Greece, 172; U.S.A., 307.
—, *Melampsora oblonga* on, in India, 411.
—, — *pinitorqua* on, in Sweden, 147.
—, mycorrhiza of, in relation to forking of roots, 347.
—, *Nigrospora sphaerica* on, in Canada, 412.
—, *Ophiostoma clavatum* on, in Sweden, 42; *Ips acuminatus* associated with, 42.
—, *Peltosphaeria canadensis* on, in Portugal, 301.
—, *Peridermium appalachianum* on, in U.S.A., 464.
—, — *brevius* on, in India, 411; renamed *Coleosporium barclayense*, 411.
—, — *pini* on, in Germany, 306.
—, *Phialea acuum* on, culture of, 516.
—, *Phytophthora cinnamomi* on, in U.S.A., 41; association with little leaf disease in U.S.A., 360.
—, *Polyporus circinatus* on, in Portugal, 92.
—, potassium deficiency in, in U.S.A., 307.
—, *Pythium ultimum* on, in Argentina, 411.
—, *Sclerotinia graminearum* on, in U.S.S.R., 361.
—, — *kitajimana* can infect, 582.
—, *Sphaeropsis necatrix* on, in Italy, 308.
—, (?) *Stagonospora pini* on, in Czechoslovakia, 40.
—, *Torula marginata* in U.S.A., 307.
—, *Torulopsis pinus* on, in Sweden, 568.
—, *Trametes squalens* on, in Portugal, 92.
Pine oil, use of, as a timber preservative, 156.
Pineapple (*Ananas comosus*), *Ceratostomella paradoxa* on, in Mexico, 375.
—, *Fusarium* on, in India, 258.
—, *Phytophthora parasitica* on, in El Salvador, 302.
—, *Sclerotium delphinii* can infect, 554.
—, zinc deficiency in, in French Guinea, 616.

Pinene, pinene hydrochloride, and pinene pentachloride, use of, as timber preservatives, 156.
Pinus, see Pine.
Piper betle, *Xanthomonas betlicola* on, in India, 107.
Piricularia on *Pennisetum purpureum* in Malaya, 538.
— *oryzae* on rice in the Belgian Congo, 422; Costa Rica, 372; El Salvador, 302; Greece, 172; Guatemala, 55; India, 54; Italy, 456; Southern Rhodesia, 475; Venezuela, 82, 399; control, 140, 456, 575; effect of cephalothecin on, 82; factors affecting, 54, 82, 140, 204, 399, 422, 456; technique for inoculating, 575; varietal reaction to, 55, 399, 575.
Pistachio nut (*Pistacia vera*), *Pileolaria terebinthi* on, in Morocco intercepted from U.S.A., 616.
Pistacia lentiscus var. *chia*, *Fomes rimosus* on, in Greece, 256.
— *palaestina*, *Pileolaria terebinthi* on, in Palestine, 147.
— *vera*, see Pistachio nut.
Pisum sativum, see Pea.
Pithya cupressi on *Juniperus sabina* in Holland, 478.
Plagiostoma, synonymy of, 89.
— *alnea* on alder, synonymy of, 89.
— *pustula* on oak, 89.
— *rehmii* on hornbean, 89.
Plant breeding in New S. Wales, review of, 104.
— —, treatise on, 134.
— chemotherapy, 133.
— diseases in the French Colonies, 250, 617; Germany, 171; U.S.A., research on, 27.
— — in orchard, nursery, and garden crops, book on, 393.
— —, legislation against, 208.
— —, list of common names of, in Alaska, Hawaii, Panama Canal Zone, Puerto Rico, and U.S.A., 73.
— —, losses caused by, 7, 315, 339, 546, 588; estimation of, 73, 343, 446.
— —, meteorobiological factors in relation to, 134.
— pathogens, stomatal droplets in relation to penetration of leaves by, 283.
— pathology at Louisiana State University, 197; in Canada, 502; the tropics, book on, 196.
— protection apparatus, 289, 617.
— —, conference on, German, 533; International, 447.
— — experiments, statistical methods of assay in, 342.
— — measures, cost of, in Germany, 564.
— — service in Denmark, 343.
— — Station, Austria, Fiftieth anniversary of, 276.
— viruses, see Viruses.
Plantain (*Musa paradisiaca*), 'rayadilla' disease of, in Colombia, 562; (?) nematodes in relation to, 562.
Plasmodiophora brassicae, host nutrition in relation to infection by, 170.
— — in soil, factors affecting, 527.
— — on *Brassica* in Northern Ireland, 216.
— — on cabbage in India, 54; Northern Ireland, 216; U.S.A., 43, 226.
— — on *Camelina sativa* in Germany, 527.
— — on *Capsella bursa-pastoris* in Germany, 527.
— — on cauliflower, control, 195.
— — on *Lepidium sativum* in Germany, 527.
— — on mustard in Germany, 527; U.S.A., 265.
— — on rape in Germany, 527; New Zealand, 19.
[*Plasmodiophora brassicae*] on *Raphanus raphanistrum* in Germany, 527.
— — on swede in Canada, 53, 158; Germany, 527.
— — on turnip in Germany, 527; U.S.A., 265.
Plasmopara, control, 26.
— *cercidis* on *Cercis canadensis* in U.S.A., 149.
— *halstedii* on sunflower in Yugoslavia, 609.
— *viticola* on vine in Abyssinia, 32; Austria, 419, 536; Canada, 69; Cyprus, 48; Denmark, 172; Italy, 102; Rumania, 167; Switzerland, 275, 315, 532, 591; U.S.S.R., 167; Yugoslavia, 473, 474, 594; control, 69, 102, 167, 275, 315, 419, 473, 474, 532, 564, 591; factors affecting, 102, 536; geographical distribution of, 160; spray-warning system against, 167; varietal reaction to, 69.
Plaster walls, fungi on, 198.
Platanus, *Gnomonia platani* on, in France, 638; Germany, 408.
—, *Polyporus hispidus* on, in Portugal, 92.
— *orientalis*, *Phytophthora cinnamomi* on, in Argentina, 152.
Platypus difficilis associated with *Stysanus microsporus*, 489.
Platysamia cecropia, *Aspergillus* spp. can infect, 115.
— —, — *flavus* and *A. luchuensis* on, in U.S.A., 65.
— —, *Metarrhizium brunneum* and *Phialophora pedrosoi* can infect, 115–116.
Pleosphaerulina zeicola on maize in French Equatorial Africa, 281.
Pleospora on *Gladiolus* in U.S.A., 283; stomatal droplets in relation to, 283.
—, Swiss species of, 354.
— *alternariae* f. *fusca* perfect state of *Alternaria tenuis*, 125.
— (?) *herbarum* on *Gladiolus* in U.S.A., 239.
— — on lettuce in Holland, 164; Italy, 164.
— — on spinach in Denmark, 224.
— — on wheat, 177.
— *kok-saghyz* on *Taraxacum kok-saghyz* in U.S.S.R., 84.
— *papaveracea* on opium poppy in Denmark, 224; Germany, 85, 257; imperfect states of, 85, 257; studies on, 85, 257; synonymy of, 85.
— — on *Papaver*, specific reaction to, 86.
— — on *Papaver cardinale* in Germany, 257.
— — on *Papaver glaucum* in Denmark, 224.
— *pellita* synonym of *P. papaveracea*, 85.
— *trichostoma* on barley in England, 89; *Helminthosporium teres* imperfect state of, 89.
Pleurotus ostreatus and *P. ulmarius*, culture of, 93.
Plum (*Prunus domestica*), cherry mottle leaf virus on, in Yugoslavia, 594.
— chlorosis in Kenya, 173.
—, coal tar fumes causing injury to, in Italy, 29.
—, *Cylindrocladium* on, in Great Britain, 211.
— deterioration during marketing in England, 449.
— diseases in U.S.A., 336.
— dwarf virus on cherry and plum, 50.
—, *Fusicladium carpophilum* on, in Kenya, 173.
— infectious chlorosis, host range of, 537.
—, magnesium deficiency in, in Norway, 559.
— mosaic virus on apricot in New Zealand, 336; transmission of, by budding, 336.
— — — on damson in New Zealand, 336; (?) in Switzerland, 224.
— — — on greengage, peach, plum, *Prunus cerasifera*, *P. mahaleb*, and *P. salicina* in New Zealand, 336.

[Plum], moulds on canned, factors affecting, 252.
— necrotic ring spot virus on cherry, 50.
— — — — — — on plum, 50; U.S.A., 21; transmission of, 21.
—, peach mosaic virus on, in Yugoslavia, 613.
—, *Pseudomonas mors-prunorum* on, in Great Britain, 66.
—, *Puccinia pruni-spinosae* on, in Switzerland, 223, 613; Yugoslavia, 594; geographical distribution of, 160.
—, raspberry white root rot on, 440.
—, *Rhizopus* on, control, 388.
—, *Sclerotinia fructicola* on, control, 388; varietal reaction to, 333.
—, — *fructigena* and *S. laxa* on, in Great Britain, 66.
—, *Stereum purpureum* on, in Great Britain, 66; Holland, 390.
—, *Taphrina pruni* on, in Yugoslavia, 336.
— virus diseases in England, 558; Kenya, 173.
—, *Xanthomonas pruni* on, in New Zealand, 21.
P.M.A.S., use of, against *Corticium solani* on *Agrostis palustris*, 284; *Helminthosporium vagans* on *Poa*, 331; *Sphacelotheca sorghi* on sorghum, 181; as a seed treatment for cereals, 546.
Poa, *Entyloma bingenensis*, *E. crastophilum*, and *E. irregulare* on, in U.S.A., 330.
—, *Helminthosporium vagans* on, in U.S.A., 331.
—, *Urocystis agropyri* on, in India, 147; *U. poae* synonym of, 147.
— *alpina*, *Puccinia graminis* on, in France, 209.
— *annua*, lucerne dwarf virus can infect, 168.
— —, *Puccinia graminis lolii* inducing hypersensitive reaction in, 330.
— *glauca*, *Ustilago poae-nemoralis* on, in France, 209.
— *hackeli*, *Uromyces poae* on, in Palestine, 147.
— *pratensis*, *Calonectria nivalis* on, in Finland, 556.
— —, *Corticium fuciforme* on, in U.S.A., 228.
— —, *Erysiphe graminis* on, in U.S.A., 124.
— —, *Helminthosporium vagans* on, in U.S.A., 285, 557.
— —, *Puccinia baldensis* on, in Italy, 124.
— —, — *graminis* on, 278.
— —, — *poae-nemoralis* on, in U.S.A., 124.
— —, *Typhula*, *T. borealis*, and *T. itoana* on, in Finland, 556.
— *serotina* and *P. trivialis*, *Calonectria nivalis*, *Typhula*, *T. borealis*, and *T. itoana* on, in Finland, 556.
Podocarpus, *Corynelia brasiliensis*, *C. jamaicensis*, *C. oreophila*, and *C. portoricensis* on, 148.
Podochytrium cornutum on *Stephanodiscus niagarae* in U.S.A., 89.
Podosphaera leucotricha on apple in Belgium, 243; Canada, 51; France, 612; Holland, 479; Northern Ireland, 593; Switzerland, 495; Tasmania, 496; control, 51, 242, 243, 247, 248, 290, 479, 495, 496; factors affecting, 243; varietal reaction to, 243.
— — on *Malus floribunda* in Switzerland, 148.
— — on pear in U.S.A., 242.
— *myrtillina* on *Vaccinium myrtillus* in Switzerland, 148.
— (?) *oxyacanthae* on cherry in U.S.A., 129.
Polemonium caeruleum, cucumber mosaic virus on, in U.S.A., 273.
— *californicum*, *Entyloma montis-rainieri* on, in U.S.A., 401.
Polioma, taxonomy of, 402.
Polybar, use of, with debena, 444.
Polymyxin, inhibition of bacterial plant pathogens by, 480.
—, review of, 621.
—, use of, against *Pseudomonas solanacearum*, 356.
Polyporaceae, identification of, 509.
— in New Zealand, 33.
Polyporus, growth factors for culture of, 30.
— *adustus*, compatibility between strains of, 509.
— — on beech in Germany, 91.
— — on cottonwood in Canada, 51.
— *alligatus*, compatibility between strains of, 509.
— *arcularius* on timber in Portugal, 92.
— *borealis* on conifers in Europe, Japan, and N. America, 353.
— *circinatus*, effect of ustilagic acid on, 448.
— — on pine in Portugal, 92.
— *conchifer* on elm in U.S.A., 214.
— *cuticularis* on mulberry in India, 410.
— — on oak in India, 410; Portugal, 92.
— *delectans* on cottonwood in Canada, 51.
— *destructor*, culture of, 93.
— — on timber in Portugal, 93.
— *distortus* on broad-leaved trees in N. America, 215.
— *fibrillosus* on spruce in Alaska, 401.
— *giganteus*, antagonism of, to bacteria and basidiomycetes, 583.
— *glomeratus* on *Acer* in Canada, 51, 524.
— — on birch in Canada, 359.
— *hispidus*, compatibility between strains of, 509.
— — on apple in Portugal, 92.
— — on *Platanus* in Portugal, 92.
— — on poplar in Portugal, 92.
— — on *Sophora japonica* in Portugal, 92.
— *licnoides* on hardwoods in N. America, 637.
— *obtusus* on oak in India, 410.
— *ochroleucus*, compatibility between strains of, 509.
— — on *Arbutus unedo* in Portugal, 93.
— — on *Erica arborea* in Portugal, 93.
— *ostreiformis* on timber in India, 95.
— *quercinus* on beach in England, 305.
— — on timber in Japan, 353.
— *schweinitzii*, culture of, 93.
— *squamosus*, antagonism of, to basidiomycetes, 583.
— *sulphureus*, antagonism of, to basidiomycetes, 583.
— —, compatibility between strains of, 509.
— — on *Eucalyptus* in Portugal, 92.
— — on oak and timber in India, 410.
— — on *Tsuga heterophylla* in Canada, 215.
— *tuberaster* in Canada and Italy, 91.
— *tulipiferus* on timber, control, 215.
— —, use of, in testing fungicides, 27.
Polysaccharides, wilt-inducing, from bacteria, 55.
Polyspora lini can infect linseed, 117.
— — on flax in Canada, 118; Czechoslovakia, 384; Victoria, 117; losses caused by, 384; technique for detecting, 117, 118.
Polystictus abietinus on *Abies balsamea* in Canada, 51, 413.
— — on *Tsuga heterophylla* in Alaska, 401.
— — on wood pulp in Finland, 155.
— *cuneatus* on *Thuja plicata* in Alaska, 401.
— *hirsutus*, compatibility between strains of, 509.
— *sanguineus* on timber, control, 156.
— *steinheilianus* on timber in India, 95.

[*Polystictus*] *versicolor*, antagonism of a bacillus to, 347; of a bacterium to, 375; of, to basidiomycetes, 583.
— —, compatibility between strains of, 509.
— —, culture of, 93.
— — on timber in Great Britain, 154; Portugal, 92; control, 465.
— *xeranticus* on oak in India, 410.
Polysulphides, use of, against *Uncinula necator* on vine, 229.
Pomasol, use of against *Botrytis cinerea* on *Freesia*, 385; *Venturia inaequalis*, 67, 190, 534, 559; lead arsenate with, 534.
Pomegranate (*Punica granatum*), *Sphaceloma punicae* on, in U.S.A., intercepted from Italy and Mexico, 131.
Pomelo, see Grapefruit.
Poncirus trifoliata exocortis in Argentina, 382.
Pongamia glabra, *Ravenelia hobsoni* on, 401.
Poplar (*Populus*), *Bacterium tumefaciens* on, factors affecting, 106.
— bark extracts, use of, against *Stereum purpureum* on apple, 287.
—, *Cytospora* on, 260.
—, *Didymosphaeria populina* on, in U.S.A., 39.
—, diseases of, in U.S.A., 38.
—, *Dothichiza populea* on, in U.S.A., 39, 639; control, 261, 639.
—, *Encoelia fascicularis* on, culture of, 516.
—, *Endostigme populina* on, in Italy, 91; synonymy of, 91.
—, *Fusarium* on, 260.
—, *Fusicladium* on, in U.S.A., 260.
—, *Melampsora abietis-canadensis* on, in U.S.A., 39.
—, — *allii-populina* on, in Greece, 7.
—, — *medusae* on, in U.S.A., 39.
—, — *pinitorqua* on, in Sweden, 147.
—, *Mycosphaerella populorum* on, in U.S.A., 39.
—, *Nectria* on, in U.S.A., 260.
—, *Phomopsis* on, in U.S.A., 639.
—, *Polyporus hispidus* on, in Portugal, 92.
—, *Pseudomonas rimaefaciens* on, 260.
—, — *syringae* f. sp. *populea* on, factors affecting, 260.
—, *Septogloeum populiperdum* on, in Germany, 534.
—, *Septoria musiva* on, in U.S.A., 260, 638.
—, *Septotinia populiperda* on, in U.S.A., 638.
—, *Valsa sordida* on, in Chile, 354; Germany, 523; U.S.A., 39.
— 'wetwood' disease in U.S.A., 38.
Poppy (*Papaver*) mosaic virus in Germany, 370; transmission of, by *Aphis fabae* and *Myzus persicae*, 370.
—, Californian, see *Eschscholtzia californica*.
Populus, see Cottonwood and Poplar.
— *grandidentata*, *P. tremula*, and *P. tremuloides*, see Aspen.
Poria on timber, 262.
— *hypobrunnea* on *Hevea* rubber in Ceylon, 629.
— *incrassata* on timber, control, 156.
— *medulla-panis* on timber in Great Britain, 154.
— *megalopora* on timber in Great Britain, 154.
— *microspora* on timber, control, 156, 361.
— *monticola* on timber in Great Britain, imported from Canada, 154.
— *obliqua* on birch in Canada and Japan, 359; antagonism between *Fomes igniarius* and, 359; renamed *Fuscoporia obliqua*, 359.
— — on *Chamaecyparis pisifera* and *Cryptomeria japonica*, resistance to, 359.
— *radiculosa* on timber, control, 156.
— *subacida* on *Tsuga heterophylla* in Canada, 215.
[*Poria*] *subserpens* on broad-leaved trees in N. America, 215.
— *tsugina* on *Tsuga heterophylla* in Canada, 215.
— *vaillantii* on timber, 526; in Great Britain, 154; toxicity of volatile antiseptics to, 465.
— *vaporaria*, culture of, 93.
— — on oak, 409.
— — on timber in Switzerland, 94; control, 263.
— *weirii*, 306.
— — on *Thuja plicata* in Alaska, 401.
— *xantha*, antibiotic effect of, on *Bacterium coli* and *Staphylococcus aureus*, 569.
— — on timber in Great Britain, 154; Portugal, 93.
Potassium deficiency in barley, 601; *Gladiolus* in U.S.A., 490; pine and spruce in U.S.A., 307; rice in Indonesia, 140; Japan, 141; sugar-cane in Jamaica, 8; vine in Germany, 592; Switzerland, 420.
— in relation to lime-induced chlorosis of lupin, 558.
— dichromate, toxicity of, to *Bacterium tumefaciens*, 595.
— fluoride, use of, as a timber preservative, 310.
— permanganate, effect of, on cucumber green-mottle mosaic virus, 420.
—, see also Fertilizers.
Potato (*Solanum tuberosum*), *Actinomyces scabies* on, 544; in Brazil, 511; Canada, 53; Chile, 573; New Zealand, 319; U.S.A., 204, 628; chlorogenic acid content in relation to resistance to, 454; control, 140, 203, 319; effect of, on *Fusarium oxysporum* and *Verticillium albo-atrum*, 203; on yield, 573; factors affecting, 319; soil microflora in relation to, 544; varietal reaction to, 53, 77, 204, 510, 573, 628.
—, *Alternaria solani* on, in Brazil, 511; Germany, 534; Mexico, 373; U.S.A., 392; control, 392; study on, 534; varietal reaction to, 534, 573.
—, *Bacillus megatherium*, *B. mycoides*, and *B. subtilis* on, 320.
—, bacterial soft rot of, association of, with *Phytophthora infestans*, 253.
—, *Bacterium rubefaciens* can infect, 253.
—, boron deficiency in, in India, 513.
—, *Botrytis cinerea* on, parasitism of, 320.
— 'cancrena' in Italy, 77.
—, 'chocolate' disease of, in Brazil, 510.
—, *Colletotrichum atramentarium* on, in Austria, 81, 574; Czechoslovakia, 81; Greece, 172; Holland, 477; Hungary, 81; Peru, 208; leaf scorch as a symptom of, 574.
—, *Corticium solani* on, in Germany, 296; control, 454; varietal reaction to, 454, 510, 540.
—, *Corynebacterium sepedonicum* on, in Canada, 50, 53, 512; U.S.A., 628; control, 53, 512; nutrition of, 512; seed certification against, in Canada, 103; varietal reaction to, 50, 53, 628.
— crinkle virus in Japan, 202; host range of, 203.
— degeneration in Germany, 398.
— diseases, seed disinfection against, 350.
— dwarf shrub virus in Germany, 397; transmission of, to *Datura stramonium*, *Petunia*, *Solanum demissum*, *S. nigrum*, tobacco, and tomato, 398.
—, *Erwinia* can infect, 218.
—, — *carotovora* on, 253, 321; parasitism of, 320.
—, (?) *Erysiphe cichoracearum* on, in Germany, 139.
—, factory gases injurious to, 571.
—, *Fusarium* on, in Great Britain, 625.
—, — *arthrosporioides* on, in Great Britain, 625.
—, — *avenaceum* on, in Great Britain, 625, 626.
—, — *caeruleum* on, in Germany, 535; Great

Britain, 625, 626; control, 294; effect of handling on incidence of, 625; toxicity of albidin to, 198; varietal reaction to, 625, 626.
[Potato, *Fusarium*] *solani* on, varietal reaction to, 540.
—, — — var. *eumartii* on, in U.S.A., 628.
—, — *tricinctum* on, in Great Britain, 625.
—, healing of freshly cut setts of, effect of chemicals on, 293.
—, *Helicobasidium purpureum* on, in S. Africa, 460.
— hollow heart, varietal reaction to, 510.
— internal black spot in U.S.A., 513.
— — blackening in Scotland, 31.
— leaf drop streak in Canada, 509.
— — roll virus on *Datura tatula*, 169; transmission of, by *Myzus persicae*, 624.
— — — — on *Physalis floridana* in Germany, 369; transmission of, by *Rhopalomyzus ascalonicus*, 369.
— — — — on potato, 624; in Bulgaria, 454; Canada, 53, 509; England, 169, 200; Germany, 202, 348, 349, 397; (?) in Mauritius, 538; Puerto Rico, 362; Switzerland, 76; U.S.A., 199, 201, 450, 628; breeding against, 254; control, 169, 170, 201, 348, 451; effect of, on leaf pigment content, 533; on yield, 451, 454; factors affecting, 76, 202, 450, 571; growth substances and inhibitors in relation to, 137; naturally occurring strains of, 199; physiology of, 200; symptoms of, 200; technique for detecting, 75, 535; transmission of, by aphids, 200, 451; *Macrosiphum solanifolii*, 201; *Myzus persicae*, 170, 201, 348, 349, 571, 624; varietal reaction to, 53, 200, 201, 254, 451, 454, 628.
— — — — on *Solanum*, varietal reaction to, 138.
— — rolling mosaic in Canada, 509.
— '— scorch', a symptom of infection by *Colletotrichum atramentarium*, 574.
—, *Leveillula taurica* on, in Israel, 361.
—, lucerne witches' broom virus on, 332.
—, *Macrophomina phaseoli* on, varietal reaction to, 540.
—, manganese deficiency in, in France, 95.
— mild mosaic virus in U.S.A., 628.
— mosaic virus, technique for diagnosing, 535.
—, (?) mycorrhiza of, in U.S.A., 396.
— net necrosis virus in U.S.A., 104, 628.
—, nickel toxicity to, in Scotland, 631.
— phloem necrosis, technique for detecting, 624.
—, *Phoma* on, in Northern Ireland, 593.
—, *Phytophthora erythroseptica* on, in Yugoslavia, 626.
—, — *infestans* on, in Argentina, 343; Assam, 370; Brazil, 510, 511; Canada, 52, 77, 226; Chile, 572; Colombia, 254; Germany, 138, 139; Great Britain, 77, 171, 253, 625; Greece, 30; Holland, 476, 477; India, 54, 540; Indonesia, 80; Israel, 361; Mexico, 373; Mozambique, 77, 511; Northern Ireland, 593; S. Africa, 537; Sweden, 78, 80; U.S.A., 204, 226, 392, 628; Yugoslavia, 349; bacterial soft rot associated with, 253; breeding against, 77, 78, 138, 139, 254, 349, 511, 626; control, 26, 30, 52, 54, 80, 171, 247, 343, 370, 373, 392, 476, 540, 572, 573; effect of insecticides on resistance to, 204; of potato viruses X and Y on, 454; effect of, on yield, 540; factors affecting, 30, 171, 572; forecasting outbreaks of, 204; leaf penetration by, 398; losses caused by, 30, 343, 349, 572; physiologic races of, 138, 151, 349, 537; resistance to, 78; testing tops for resistance to, 78, 80; varietal reaction to, 77, 79, 138, 139, 254, 349, 398, 510, 511, 537, 573, 628; warning service against, 77.
[Potato, *Phytophthora*] *parasitica* on, in Venezuela, 380.
—, *Pseudomonas fluorescens* can infect, 253.
—, — *marginalis* can infect, 165.
—, — *solanacearum* on, in Brazil, 511; India, 574; Southern Rhodesia, 475.
— purple top in Canada, 509.
—, *Pythium ultimum* on, in U.S.A., 104.
— rugose mosaic in Canada, 509.
—, *Sclerotinia sclerotiorum* on, in Greece, 6; toxic action of, 30.
— seed certification, 533; in Chile, 573.
— spindle tuber virus in Puerto Rico, 362; Scotland, 628; varietal reaction to, 510.
—, *Spondylocladium atrovirens* on, geographical distribution of, 160.
—, *Spongospora subterranea* on, in Belgium, 512; Chile, 573; Great Britain, 625; legislation against, in Brazil, 350.
—, *Synchytrium endobioticum* on, in Canada, 53; Denmark, 172; Germany, 536, 573; Italy, 76; Switzerland, 533; biotype G of, 573; breeding against, 105; legislation against, in Brazil, 350; Germany, 421; varietal reaction to, 53, 77, 105, 421, 573.
—, tobacco leaf curl virus on, in India, 541.
—, — ring spot virus on, 138.
—, — veinal necrosis virus on, serology of, 201.
—, tomato spotted wilt virus on, in New S. Wales, 451.
— tuber rot in Canada, 52.
—, *Verticillium albo-atrum* on, in U.S.A., 350, 628; varietal reaction to, 319, 628.
—, — *dahliae* on, in U.S.A., 350.
— virus diseases, 319; in Austria, 624; Brazil, 511; Bulgaria, 453; Germany, 347, 398; aphids in relation to, 624; hydroponic method of testing for, 571; technique for detecting, 75; transmission of, by aphids, 533; by *Myzus persicae*, 348, 624.
—(?) — A on potato in Canada, 53, 509; technique for detecting, 75.
— — — on *Solanum demissum*, 138.
— — X on *Gomphrena globosa*, 138.
— — — on potato, 624; in Bulgaria, 454; Germany, 202, 397, 510; Japan, 76, 203; Northern Ireland, 593; Puerto Rico, 362; Yugoslavia, 349; complement fixation test for, 76; effect of, on *Phytophthora infestans*, 454; on yield, 453; electron microscope study of, 397; host range of, 203; possible infection of, by root contact, 535; serology of, 453, 510; strains of, 452, 627; technique for detecting, 75, 76, 254, 453; transmission of, to chilli, *Datura stramonium* and *Gomphrena globosa*, 452; varietal reaction to, 202, 203, 453, 454, 510, 535, 593, 627, 628.
— — — on *Solanum demissum* and other species, 138.
— — — on tobacco, 293, 520; age-induced variation in susceptibility to, 519; movement of, in leaf parenchyma, 519; technique for detecting, 76.
— — — on tomato, effect of malachite green on, 223.
— — Y, host range of, 203.
— — — on chilli in Brazil, 418.
— — — on *Datura metel* and *Lycium rhombifolium*, 293.
— — — on *Physalis heterophylla*, *P. turbinata*, and *P. virginiana* in U.S.A., 293.
— — — on potato in Bulgaria, 454; England,

170, 200, 201; Germany, 348; Puerto Rico, 362; U.S.A., 293; breeding against, 254; control, 348; effect of, on *Phytophthora infestans*, 454; on yield, 454; serology of, 201; technique for detecting, 75, 535; transmission of, by aphids, 200; *Myzus persicae*, 348; seed, 397; varietal reaction to, 254, 293, 454, 627; virulence and properties of, 293.
[Potato virus Y] on *Solanum*, 138.
— — — on tobacco, 293.
— viruses, indicator plants for, 138.
— witches' broom virus on potato, 332; in Canada, 53; Scotland, 628; transmission of, by grafting, 53; to *Cyphomandra betacea* and tomato, 53.
— — — — on tomato and *Vinca rosea*, 332.
—, *Xanthomonas carotae* on, 321.
— yellow dwarf virus on *Nicotiana rustica*, antibiotics not controlling, 319.
— — — — on potato, electron microscope study of, 276.
Potentilla, *Mycosphaerella fragariae* on, in Canada, 442.
Präparat BB4271, use of, against *Venturia inaequalis*, 67.
Preparation 36L, use of, as a seed treatment for vegetables, 264.
— 275–D, use of, against *Sphacelotheca sorghi* on sorghum, 181.
— 341–B, use of, against *Coccomyces hiemalis* on cherry, 392.
— 341–C, use of, against *Venturia inaequalis*, 392.
— 341 SC, use of, against *Coccomyces hiemalis* on cherry, 129.
— 854, use of, as a seed treatment for cotton, 422.
— 1182, use of, against *Fusarium bulbigenum* var. *lycopersici*, peach X-virus, and *Verticillium albo-atrum*, 290.
— 1207, use of, against *Fusarium bulbigenum* var. *lycopersici*, peach X-virus, and *Verticillium albo-atrum*, 290.
— 5400, use of, as a seed treatment for cotton, 422.
— E 605, use of, against *Myzus persicae*, 348.
— J 49, use of, against *Venturia inaequalis*, 189, 341.
— L–224, use of, against *Sphacelotheca sorghi* on sorghum, 181.
— M 555, use of, against *Coccomyces hiemalis* on cherry, 67, 498; *Plasmopara viticola* on vine, 275; *Puccinia pruni-spinosae* on plum, 613; *Venturia inaequalis*, 67.
— V 5, use of, for killing potato haulms, 104.
— Z 78, use of, against *Venturia inaequalis*, 341.
Primula mosaic virus on *Primula obconica* in U.S.A., 18; transmission of, by aphids, 18.
— *malacoides*, factory gases injurious to, 571.
— *obconica*, aster yellows virus on, transmission of, by *Macrosteles divisus*, 18.
— —, cucumber mosaic virus on, in England, 220.
— —, factory gases injurious to, 571.
— —, *Primula* mosaic virus on, in U.S.A., 18.
— —, tobacco mosaic virus, tomato spotted wilt virus, and western cucumber mosaic virus on, 18.
— *sinensis* var. *stellata*, *Chrysanthemum* mosaic virus can infect, 239.
— *vulgaris*, cucumber mosaic virus on, in England, 238.
Privet (*Ligustrum vulgare*), *Ramularia ligustrina* on, in Italy, 492.
Prontalbin, effect of, on cereal rusts, 176.
Prospodium oblectum on *Clytostoma callistegioides* in Argentina, Brazil, and Uruguay, 402.
Protocoronospora phoradendri on *Phoradendron flavescens* var. *macrophylla* in U.S.A., 38; renamed *Kabatiella phoradendri*, 38.
Protopectinase, production of, by phytopathogenic bacteria, 230.
Prune, see Plum.
Prunus, *Fomes subroseus* on, in N. America, 215.
— *amygdalus*, see Almond.
— *armeniaca*, see Apricot.
— *avium*, see Cherry.
— *cerasifera*, plum mosaic virus on, in New Zealand, 336; host range of, 336.
— — var. *pissardii*, plum mosaic virus can infect, 336.
— *cerasus*, see Cherry.
— *demissa* necrotic ring spot virus in U.S.A., 21.
— —, western X-disease virus on, 22; transmission of, by *Colladonus geminatus*, 22; to peach, 22.
— *domestica*, see Plum.
— — var. *italica*, see Greengage.
— *emarginata* var. *mellis*, little cherry virus on, in Canada, 54.
— *insititia*, see Damson.
— *mahaleb*, *Armillaria mellea* on, 69.
— —, cherry yellows virus on, in U.S.A., 336.
— — 'latent complex' viruses, technique for detecting, 127.
— —, *Phytophthora* on, 69.
— —, plum mosaic virus on, in New Zealand, 336; host range of, 336.
— —, *Pseudomonas syringae* on, 69.
— — ring spot virus in U.S.A., 336.
— *persica*, see Nectarine, Peach.
— *salicina*, plum mosaic virus on, in New Zealand, 336; host range of, 336.
Psalliota, spore discharge in, 567.
—, see also Mushroom.
— *xanthoderma*, antibiotic effect of, on bacteria, 569.
Pseudococcus citri, transmitting cacao swollen shoot virus, 233, 425; control, 233.
— *njalensis*, transmitting cacao swollen shoot virus, 233, 425, 427; control, 233.
Pseudomonas, antagonism of, to *Botrytis cinerea*, 269.
—, inhibition of, by aureomycin and streptomycin, 480; by terramycin, 54, 480.
— *aeruginosa*, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271.
— *andropogoni*, inhibition of, by *Bacillus*, 487.
— — on sorghum, *Sorghum bicolor* var. *technicus*, and *S. saccharatum* in Argentina, 487.
— *angulata*, action of, on pectate gel, 9.
— —, inhibition of, by streptomycin, 480.
— — on tobacco in Tanganyika Territory, 225.
— *atrofaciens* on tomato, production of protopectinase by, 230.
— *caryophylli* on carnation, control, 227; varietal reaction to, 328.
— *coronafaciens*, inhibition of, by aureomycin, streptomycin, and terramycin, 480.
— — var. *atropurpurea* on *Bromus*, factors affecting, 556; varietal reaction to, 65.
— *fluorescens*, action of, on pectate gel, 9.
— —, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271.
— — can infect potato, 253.
— *glycinea*, inhibition of, by aureomycin, chloramphenicol, and terramycin, 480.
— *glycines* on soy-bean in U.S.A., 267.
— —, technique for preserving cultures of, 313.

[*Pseudomonas glycines*] var. *japonica* on soybean, 458.
— *lacrymans* on cucumber in U.S.A., 272, 290, 472; control, 273, 564; factors affecting, 290; production of protopectinase by, 230; spread of, 273; study on, 472; transmission of, by (?) *Acalymma vittata* and (?) *Diabrotica undecimpunctata howardi*, 272; varietal reaction to, 314.
— *lauracearum* on *Umbellularia californica* in U.S.A., 261.
— *maculicola* on Brussels sprouts, cabbage, and cauliflower in Holland, 97.
(?) — *marginalis* on chicory in U.S.A., intercepted from Belgium, 164; host range of, 165.
— — on endive and lettuce, 165; in U.S.A., 530.
— *medicaginis* f. sp. *phaseolicola* on bean in Mauritius, 538; Tanganyika Territory, 162; U.S.A., 219, 415, 416, 468; control, 220, 415, 468; effect of, on pectate gel, 9; of polymyxin on, 480; technique for inoculating, 219; varietal reaction to, 3, 162, 219, 266.
— *mori* on hemp in Italy, 184.
— — on mulberry, 230.
— *mors-prunorum*, action of, on pectate gel, 9.
— — on cherry in England, 171.
— — on plum in Great Britain, 66.
— *pisi* on pea in Canada, 54; (?) Tanganyika Territory, 160; Tasmania, 3; detection of, 54.
(?) — — on sweet pea in Tanganyika Territory, 160.
— *punctulans* synonym of *P. tomato*, 36.
— *rimaefaciens* on poplar, 260.
— *savastanoi* on olive in Italy, 443; U.S.A., 25.
— — f. sp. *nerii* on oleander in Greece, 225.
— *solanacearum* on *Casuarina equisetifolia* in Mauritius, 537.
— — on potato in Brazil, 511; India, 574; Southern Rhodesia, 475.
— — on tobacco in U.S.A., 33, 543.
— — on tomato, control, 356.
— *syringae*, action of, on pectate gel, 9.
— — on cherry, 69.
— — on citron in Italy, 183.
— — on citrus in French N. Africa, 63.
— — on lemon in Italy, 183; U.S.S.R., 622.
— — on orange in Italy, 183; U.S.S.R., 622.
— — on *Prunus mahaleb*, 69.
— — f. sp. *populea* on poplar, action of, on pectate gel, 9; factors affecting, 260.
— *tabacum*, action of, on pectate gel, 9.
— — on soy-bean in U.S.A., 267, 367.
— — on tobacco in Germany, 536; Italy, 90; factors affecting, 134.
— —, technique for preserving cultures of, 313.
— *tomato* on tomato in Italy, 36; *P. punctulans* synonym of, 36.
Pseudoperonospora cannabina on hemp in Italy, 184.
— *cubensis* on cucumber in U.S.A., 368; leaf maturity in relation to, 102; varietal reaction to, 368, 542.
— — on cucurbitaceae in Canada and U.S.A., 226.
— — on melon, varietal reaction to, 362.
— — on watermelon in U.S.A., 165, 542.
— *kumuli* on hops in Canada, 206; England, 143.
Pseudopeziza medicaginis on lucerne in Denmark, 172; Holland, 516.
— *ribis* on currants in Denmark, 172; Norway, 559.
— — on gooseberry in Denmark, 172; Holland, 478.
[*Pseudopeziza*] *tracheiphila* on vine in Austria, 419; Switzerland, 49, 315.
— *trifolii* on clover in Holland, 516.
Pseudoplea, taxonomy of, 354.
Pseudoseptoria synonym of *Selenophoma*, 353.
Pseudospondias microcarpa, *Calonectria rigidiuscula* can infect, 232.
Pseudotsuga taxifolia, *Fomes annosus* on, in England, 262; Norway, 92.
— —, nitrogen deficiency in, in U.S.A., 307.
— —, *Phaeocryptopus gaeumanni* on, in Germany, 534.
— —, *Rhabdocline pseudotsugae* on, in Germany, 534.
— — var. *viridis*, *Rhabdocline pseudotsugae* on, in Yugoslavia, 41.
Psidium guajava, see Guava.
Ptergota macrocarpa, *Calonectria rigidiuscula* can infect, 232.
Pterospermum acerifolium, *Nectria haematococca* on, in Mauritius, 538.
Puccinia in the air, 618; China, 134.
— on cereals in the Eastern Mediterranean, 546; Finland, 481; effect of chemicals on, 176.
— on *Salvia* in N. America, 578.
— on wheat in Colombia, 428; breeding against, 105.
— species with deep sori, 146.
— *aegra* on *Viola* in England, 256.
— *agropyri* on turf in U.S.A., 330.
— *agrostidis* on *Agrostis verticillata* in Palestine, 146.
— *antirrhini* on *Antirrhinum* in Israel, 563; U.S.A., 284.
— *arrhenathericola* on *Arrhenatherum palaestinum* in Palestine, 146.
— *asparagi* on *Asparagus* in Holland, 478; Portuguese W. Africa, 302.
— *avenastri* on oats in France, 146.
— *baldensis* on *Poa pratensis* and *Senecio brachychaetus* in Italy, 124.
— *biporula* on *Salvia fulgens* in Mexico, 578.
— *bromoidis* on oats in France, 146.
— *cannae* on *Canna*, geographical distribution of, 160.
— *carthami* on *Carthamus glaucus* in Palestine, 146.
— — on safflower in Canada, 632; U.S.A., 459, 631; control, 446, 459, 631; root infection in, 632; transmission of, by seed, 459; varietal reaction to, 632.
— *caulicola* on *Salvia greggii* and *S. lanceolata* in U.S.A., 578.
— *cerasi* on cherry in Switzerland, 223.
— *chrysanthemi* on *Chrysanthemum* in Great Britain, 120, 384.
— — on *Chrysanthemum indicum* in Palestine, 146.
— *cichorii* on chicory in New S. Wales, 225.
— *coronata* on *Bromus laciniatus* in Mexico, 372.
— — on *Dactylis glomerata* in Mexico, 372.
— — on *Lolium perenne* in Denmark, 109.
— — on oats, 372; in Abyssinia, 32; Denmark, 109; Mexico, 372; U.S.A., 180, 235; U.S.S.R., 430; breeding against, 113; control, 430; effect of, 2,4-D on, 179; 3-indole-acetic acid on, 179; of, on yield, 235; factors affecting, 109, 176; physiologic races of, 12, 235, 549; varietal reaction to, 12, 113, 180, 227, 549.
— — on *Rhamnus* in U.S.S.R., 430.
— — on turf in U.S.A., 330.
— *cynodontis* on *Cynodon dactylon* in Sierra Leone, 476.
— *dispersa* on *Aegilops*, *A. ovata*, *Anchusa*, *A.*

italica, A. sempervirens, Cynoglossum, Echium, Lycopsis, Nonnea, Omphalodes, and *O. nitida,* 376–377.
[*Puccinia dispersa*] on rye, 377; in Denmark, 109, 171; factors affecting, 176; geographical distribution of, 160.
— — on wheat, 376.
— *farinacea* on *Salvia farinacea* and *S. patens* in Guatemala and Mexico, 578.
— — var. *azurea* on *Salvia azurea* in U.S.A., 578.
— *gladioli* on *Gladiolus segetum* in Palestine, 146.
— *glumarum* in the air, 618; in India, 540.
— — on barley in Denmark, 109.
— — on wheat in Abyssinia, 32; Colombia, 371; Denmark, 109; England, 598; Germany, 483; India, 540; Kenya, 481; Sweden, 109; U.S.S.R., 111; breeding against, 110, 111, 428, 547; effect of lime-sulphur on, 446; physiologic races of, 598; silicic acid deposits in varieties resistant to, 483; technique for detecting resistance and susceptibility to, 110; varietal reaction to, 109, 110, 111, 371, 481, 483, 547, 598.
— *graminis,* host range of, 278, 330.
— — in the air in Canada, 28; India, 540.
— — on barberry in Canada, 486; eradication against, 109, 599.
— — on barley, 278; breeding against, 485; inoculation of albino seedlings with, 599; varietal reaction to, 485.
— — on *Bromus catharticus* in U.S.A., 284.
— — on cereals in Cyprus, 546; Denmark, 109; Sweden, 599; barberry eradication against, 109, 599; legislation against, in Denmark, 109; losses caused by, 546.
— — on *Dactylis glomerata* in Australia, 330.
— — on *Hordeum murinum* and *H. sativum* in Palestine, 146.
— — on *Lolium* in Australia, 330.
— — on oats in Canada, 52; Denmark, 171; Guatemala, 55; Palestine, 146; Portuguese W. Africa, 302; U.S.A., 179, 180; effect of 2,4-D on, 179; physiologic races of, 179, 486, 549; varietal reaction to, 52, 55, 113, 180, 486, 549.
— — on *Poa alpina* in France, 209.
— — on rye, 278; in Switzerland, 234.
— — on turf in U.S.A., 330.
— — on wheat, 278; in Argentina, 276, 378; Canada, 279; Colombia, 371; Cyprus, 109; Denmark, 171, 233; Ecuador, 371; Finland, France, Germany, and Great Britain, 234; Guatemala, 55; India, 446, 540, 594; Kenya, 173, 481; Mexico, 371, 372, 482; Portuguese W. Africa, 302; Queensland, 597; S. Australia, 598; Spain, 277, 377; Switzerland, 234; U.S.A., 277; barberry eradication against, 234; breeding against, 109, 110, 234, 428, 546, 547; effect of chemicals on germination of, 72, 371, 446; of, on yield, 540; factors affecting, 234; geographical distribution of, 377; legislation against, in Finland, 234; physiologic races of, 173, 234, 277, 278, 371, 377, 378; technique for testing varietal reaction to, 279; varietal reaction to, 55, 59, 109, 110, 234, 276, 277, 371, 377, 378, 481, 482, 546, 547, 594, 597, 598.
— —, varieties of, in Australia, 330; Canada, 486; Scotland, 278.
— *helianthi* on sunflower in Somaliland, 33; Yugoslavia, 187.
— *hordei* on barley in Denmark, 109; Mexico, 372; Portugal, 376; effect of chemicals on, 176.
— — on *Dipcadi serotinum,* 376.
— — on *Ornithogalum, O. narbonense, O. umbellatum,* and *O. unifolium* in Portugal, 376.
[*Puccinia*] *impedita* on *Salvia coccinea* in W. Indies, 578.
— *loliina* on *Lolium rigidum* in Palestine, 146.
— *menthae* on *Blephila hirsuta* and *Cunila origanoides* in U.S.A., 351.
— — on *Lycopus europaeus* in Palestine, 146.
— — on *Mentha* in Palestine, 146; U.S.A., 351.
— — on *Micromeria serpyllifolia* in Palestine, 146.
— — on *Monarda didyma, M. fistulosa, M. punctata,* and *Monardella* in U.S.A., 351.
— — on peppermint in U.S.A., 142, 351.
— — on *Pycnanthemum* in U.S.A., 351.
— — on *Satureja thymbra* in Palestine, 146.
— — on *Satureja vulgaris* in U.S.A., 351.
— *opizii* on *Carex appropinquata* and *C. paniculata* in England, 589.
— — on lettuce in England, 589.
— *penniseti* on *Pennisetum,* geographical distribution of, 160.
— *poae-nemoralis* on *Poa pratensis* in U.S.A., 124.
— *polysora* on maize in the Gold Coast, Nigeria, and Sierra Leone, 325; geographical distribution of, 160.
— *porri* on garlic, control, 563.
— *pringsheimiana* on gooseberry in Holland, 477.
— *prostii* on tulip in Palestine, 146.
— *pruni-spinosae* on almond in Tanganyika Territory, 226; geographical distribution of, 160.
— — on *Anemone* in Switzerland, 223.
— — on *Anemone coronaria, A. hepatica,* and *A. ranunculoides* in Switzerland, 613.
— — on apricot and cherry, geographical distribution of, 160.
— — on *Eranthis hiemalis* in Switzerland, 613.
— — on peach in Abyssinia and Somaliland, 33; geographical distribution of, 160.
— — on plum in Switzerland, 223, 613; Yugoslavia, 594; geographical distribution of, 160.
— *psidii* on guava in Brazil, 391.
— *purpurea* on sorghum in Portuguese W. Africa, 302; Tanganyika Territory, 320.
— *sorghi* on maize in Argentina, 434; Mexico, 371; U.S.A., 13, 61; W. Africa, 325; Yugoslavia, 594; control, 13, 371; life-cycle of, 434.
— — on *Oxalis corniculatus* in Argentina, 434.
— *symphyti-bromorum* f. *tuberosi-asperi* on *Bromus asper,* 146.
— *taraxaci* on *Taraxacum kok-saghyz* in U.S.S.R., 83.
— *triticina* in the air in Canada, 28; India, 540.
— — on *Bromus catharticus* in U.S.A., 284.
— — on *Isopyrum fumarioides,* 376.
— — on *Thalictrum speciosissimum* and other spp. in Portugal, 376.
— — on wheat in Argentina and Brazil, 10; Canada, 279; Chile, 10; Colombia, 371; Denmark, 109; Germany, 482; Guatemala, 55; Kenya, 481; Mexico, 10, 371; Portuguese W. Africa, 302; Uruguay and U.S.A., 10; breeding against, 110, 428, 547; control, 371, 446, 483; effect of insecticides on susceptibility to, 482; factors affecting, 11, 176; physiologic races of, 10, 11; technique for testing varietal reaction to, 279; varietal reaction to, 10, 11, 55, 109, 110, 371, 481, 483, 546, 547, 597.
— *tulipae* on tulip in Germany, 536; Palestine, 146.
— *violae* on *Viola cenisia* in France, 209.
Pucciniastrum goeppertianum on *Abies* and *Vaccinium* in Alaska, 401.
Pucciniopsis caricae on papaw in Peru, 208.

Puccinia sira, note on, 146.
Pullularia, effect of rimocidin on, 395.
— in the air, 504.
— *pullulans*, culture of, 93.
— — in the air in India, 567.
— — on paint in U.S.A., 136.
— — on timber in Sweden, 42; control, 94.
— — on wheat, 177.
— — on wood pulp in Finland, 155.
Pumpkin, see Vegetable marrow.
Punica granatum, see Pomegranate.
Puratized, use of, against *Bacterium tumefaciens*, 319, 595; *Phytophthora cryptogea* on tomato, 522; *Xanthomonas phaseoli* on bean, 220.
— agricultural spray, use of, against *Botrytis cinerea* on apple, 190; *Sclerotinia fructicola* on peach, 389; *Venturia inaequalis*, 53; *Xanthomonas pruni* on peach, 389.
— N5E, use of, against sugar-cane seed piece decay, 299.
Puraturf, use of, against *Helminthosporium vagans* on *Poa*, 331.
— 177, use of, against *Sclerotinia gladioli* on *Gladiolus*, 120.
Putrescine in potassium-deficient barley, 601.
Pycnanthemum, *Puccinia menthae* on, in U.S.A., 351.
Pycnostysanus azaleae on *Rhododendron* in England, *Graphocephala coccinea* in relation to, 240.
Pyrausta nubilalis, bacteria, *Beauveria*, *B. bassiana*, *B.* (?) *globulifera*, and fungi on, in U.S.A., 552.
Pyrenochaeta pubescens on lime tree in Czechoslovakia, 38.
Pyrenophora, taxonomy of, 354.
— *avenae* on oats in Canada, 596; India, 539; Northern Ireland, 593; longevity of, 596; varietal reaction to, 539, 601.
— — on *Phalaris minor* in India, 539.
— *bromi* on *Bromus* in U.S.A., 66; factors affecting, 556.
— *lolii* on *Lolium multiflorum* and *L. perenne* in Holland, 476.
— — on turf in U.S.A., 330.
— *pellita* synonym of *Pleospora papaveracea*, 85.
— *teres* synonym of *Pleospora trichostoma*, 89.
— *trichostoma* on wheat, 58.
Pyrethrum, see *Chrysanthemum cinerariaefolium*.
Pyridylmercuric chloride, use of, against moulds on electronic equipment, 346.
Pyroligneous acid, effect of, on *Corticium solani* on larch, *Fusarium* on *Cryptomeria japonica*, and *Pythium* on *Paulownia tomentosa*, 153.
Pyrophyllite, use of, with thiram, 4.
Pyrrole, toxicity of, to *Sclerotinia fructicola* and *Stemphylium sarciniforme*, 340.
Pyrus communis, see Pear.
— *malus*, see Apple.
Pythium, antagonism between different species of, 623.
— on beet in Denmark, 172; control, 266.
— on *Begonia* in Greece, 173.
— on cacao in Costa Rica, 374.
— on celery in U.S.A., 269.
— on cereals in Japan, 57.
— on groundnut, control, 340.
— on lettuce in Italy, 530.
— on lucerne in Argentina, 436.
— on maize in Mexico, 373.
— on oats in Northern Ireland, 593.
— on *Paulownia tomentosa*, control, 153.
— on pea in Holland, 471; Tasmania, 3; control, 3, 340.
[*Pythium*] on *Robinia pseudo-acacia* in Greece, 172.
— on sorghum in S. Africa, 536.
— on tobacco, control, 249.
— on vegetables in Germany, 584.
— *aphanidermatum* on bean in U.S.A., 366, 416.
— — on cabbage in India, 526.
— — on cauliflower in India, 526.
— — on Chinese mustard in India, 584.
— — on cowpea in Venezuela, 33.
— — on *Ipomoea pulchella* in India, 492.
— — on lettuce in India, 588.
— — on lucerne in Venezuela, 33.
— — on maize in India, 551.
— — on papaw in India, 501.
— — on tobacco in Venezuela, 33.
— — on tomato in India, 526.
— — on turf in U.S.A., 330.
— *arrhenomanes* in soil in Venezuela, 33.
— — on clover, 386.
— — on maize in Canada, 60, 430.
— — on sorghum in Venezuela, 33.
— — on sugar-cane in Mexico, 375.
— — on turf in U.S.A., 330.
— — on wheat, factors affecting, 61.
— *debaryanum*, control of, by antibiotics, 449.
— — on beet in Holland, 161.
— — on cabbage, control, 564.
— (?) — on cacao in Costa Rica, 425.
— — on clover, 386.
— — on cotton in India, 488.
— — on *Gerbera jamesonii* in Holland, 555.
— — on hollyhock in India, 328.
— — on lettuce, 623; in U.S.A., 5.
— — on maize in Canada, 60; control, 14.
— — on *Melilotus alba* and *M. officinalis* in Canada, 493.
— — on *Pelargonium hortorum* in England, 386.
— — on *Saponaria* in India, 609.
— — on tomato, 623; control, 540.
— — on turf in U.S.A., 330.
— *indicum* on *Saponaria* in India, 609.
— *intermedium* on hops and *Kentia*, 623.
— *irregulare*, effect of antibiotic from streptomycete A 67 on, 449.
— — in soil in U.S.A., 640.
— — on beet in Holland, 161.
— — on clover, 386.
— — on lettuce in U.S.A., 5.
— *mamillatum* on opium poppy and peas in Australia, 459.
— *myriotylum* on bean in U.S.A., 366.
— *paroecandrum* on clover, 386.
— *spinosum* on lettuce in U.S.A., 5.
— *splendens* on clover, 386.
— *ultimum*, effect of actidione and clavacin on, 449; fungocin on, 395; gliotoxin on, 449.
— — in soil, control, 265.
— — on bean in Tanganyika Territory, 225; U.S.A., 366.
— — on clover, 386.
— — on conifers in Argentina, 411.
— — on lettuce, 623.
— — on maize, 14.
— — on *Melilotus alba* and *M. officinalis* in Canada, 493.
— — on opium poppy in Australia, 459.
— — on pea in Australia, 459; control, 265.
— — on pine in Argentina, 411.
— — on potato in U.S.A., 104; losses caused by 104.
— — on radish in Canada, 51.
— — on strawberry in U.S.A., 562.
— — on turf in U.S.A., 330.

Quercus, see Oak.
Quince (*Cydonia vulgaris*), *Cytospora microspora* on, in Chile, 354.
—, *Gymnosporangium confusum* on, in Yugoslavia, 353.
—, pear leaf flecking and veinbanding can infect, 558.
8-quinolinol benzoate, use of, against *Glomerella* on *Vanda*, 186.
— salicylate, use of, against *Xanthomonas phaseoli* on bean, 469.
Quinone compounds, fungicidal properties of, 340.
Quinonoid, toxicity of, to *Fusarium culmorum*, 223.
Quinosol, use of, against *Fusarium* on cucumber, 314.
6,7-quinoxalinediol monohydrochloride, use of, as a fungicide, 26.

Radioisotopes, use of, in phytopathology, 62.
Radish (*Raphanus sativus*), *Aphanomyces raphani* on, in Germany, 536.
—, *Erwinia* can infect, 218.
—, *Fusarium conglutinans* on, in U.S.A., 362; host range of, 362.
— mosaic virus on radish, transmission of, by aphids, 43; *Myzus persicae*, 97.
—, *Pythium ultimum* on, in Canada, 51.
Ramularia (?) *areola* on cotton in French Equatorial Africa, 115.
— *armoraciae* on horse-radish, geographical distribution of, 160.
— *bellunensis* on *Chrysanthemum cinerariifolium* in the Belgian Congo, 423.
— *lampsanae* on chicory in Greece, 7.
— *ligustrina* on privet in Italy, 492.
— *onobrychidis* on sainfoin, geographical distribution of, 160.
— *vallisumbrosae* on *Narcissus*, geographical distribution of, 160.
Rape (*Brassica napus* var. *oleifera*), *Alternaria brassicae* on, in Sweden, 103.
—, factory gases injurious to, 571.
—, *Plasmodiophora brassicae* on, in Germany, 527; New Zealand, 19.
—, turnip mosaic virus can infect, 363.
Raphanus raphanistrum, *Plasmodiophora brassicae* on, in Germany, 527.
— *sativus*, see Radish.
Raspberry (*Rubus*), *Alternaria* on, in U.S.A., 561.
—, boron deficiency in, in New Zealand, 70.
—, *Botrytis* on, in U.S.A., 561.
— bushy dwarf virus, varietal reaction to, 192.
—, *Cladosporium* on, in U.S.A., 561.
— curly dwarf virus, 192.
—, *Didymella applanata* on, in Germany, 444; Switzerland, 49, 223; Yugoslavia, 337, 594.
—, *Elsinoe veneta* on, in Canada, 51, 69, 438; U.S.A., 499.
—, *Erwinia amylovora* f. sp. *rubi* on, in U.S.A., 131, 560.
—, *Fusarium* on, in U.S.A., 561.
—, Harris's mosaic viruses 1 and 2 on, 192.
— leaf curl virus in England, 192.
— 'leaf mottle' virus in England, 192; in Scotland, 439; transmission of, by *Amphorophora rubi*, 439.
—, *Leptosphaeria coniothyrium* on, in Germany, 444.
—, manganese deficiency in, in Norway, 559.
— medium vein chlorosis in England, 192.
— mild vein chlorosis in England, 192; in Scotland, 614; transmission of, by (?) *Aphis idaei*, 614.
[Raspberry] moderate vein chlorosis in Scotland, 614.
— mosaic virus on raspberry in U.S.A., 615; transmission of, by *Amphorophora rubi*, 615.
— — — 1, see Raspberry veinbanding virus.
— — — 2, on raspberry, 192.
—, *Rubus* stunt virus on, 192; in Holland, 288; transmission of (?) by aphids, 288.
— severe vein chlorosis, 192; in Scotland, 614; transmission of, by grafting, 615.
—, *Sphaerotheca humuli* on, in U.S.A., 24, 288.
— veinbanding virus on raspberry, 192; in Scotland, 615; transmission of, by *Amphorophora rubi*, 615.
—, *Verticillium albo-atrum* on, 386; in U.S.A., 337.
—, — *dahliae* on, in Holland, 478.
—, virus-free stocks of, 66.
— white root rot in Tasmania and Victoria, 439; host range of, 440.
— yellows diseases, 192.
Rats transmitting *Xanthomonas albilineans*, 145.
Ravenelia acacia-senegalae, *R. acacicola*, and *R. ajmerensis* on *Acacia* in India, 355.
— *hobsoni* on *Pongamia glabra*, 401.
— *ornata*, emended description of, 355.
— *sessilis* on *Albizzia lebbek* in India, 568.
— *wiehei* on *Cassia* in Nyasaland, 402.
Report from Assam, 370; Baarn, 151; the Belgian Congo, 422; British Columbia, 103; California, 227; Canada, 49, 52, 370; Ceylon, 210; Cheshunt, 222; the Cocoa Conference, 1951, 424; Colorado, 104; Denmark, 171, 224; E. Africa, 7; E. Malling, 171; the Empire Cotton Growing Corporation, 184; Florida, 541; the Forest Products Research Board, 262; Georgia, 421; the German Botanical Society, 1950, 319; the Gold Coast, 311; Greece, 172, 224; Guatemala, 54; India, 538, 594; the Institute of Brewing, 142; the Institut de Recherches du Coton et des Textiles Exotiques, 115; Kenya, 173; Massachusetts, 226; Mauritius, 537; New Zealand, 319; Ottawa, 370; the Overseas Food Corporation, E. Africa, 320; Queensland, 352; Rothamsted Experimental Station, 169, 200; Sierra Leone, 476; S. Africa, 536; Southern Rhodesia, 475; the Sugar Cane Technologists' Congress, 297; Switzerland, 49, 223; Tanganyika Territory, 225; Uganda, 173; Wageningen, 476; W. Africa, 231.
Rhabdocline pseudotsugae on *Pseudotsuga taxifolia* in Germany, 534; Yugoslavia, 41.
Rhabdospora ramealis on blackberry in Switzerland, 561; synonymy of, 561.
— — var. *macrospora* synonym of *R. ramealis*, 561.
Rhamnus, *Puccinia coronata* on, in U.S.S.R., 430.
Rhinotrichum griseo-roseum, antagonism between *Cercospora capsici* and, 418.
Rhizobium on soy-bean, effect of fungicides on nodulation by, 587.
— *meliloti* and *R. trifolii*, antibiotics not toxic to, 449.
Rhizoctonia, inhibition of, by benzene hexachloride, 192.
— on celery in U.S.A., 269.
— on groundnut, control, 340.
— on *Hibiscus cannabinus* in U.S.A., 489.
— on lucerne in Argentina, 436.
— on pea, control, 340.
— on *Taraxacum kok-saghyz* in U.S.S.R., 83.
— on turf in U.S.A., 331.
— on wheat in Mexico, 372.

[*Rhizoctonia*] *microsclerotia* on cotton in El Salvador, 302.
— (?) — on soy-bean in U.S.A., 367; host range of, 367.
— *oryzae* on rice, 458.
— *repens* on *Orchis militaris*, 74.
— *solani*, see *Corticium solani*.
Rhizophagus on clover, 255.
— on strawberry in U.S.A., 562.
Rhizophidium carpophilum, *R. sphaerocarpum*, *R. sphaerotheca*, and *R. subangulosum* in soil in Germany, 142.
Rhizopus on flour in India, 505.
— on peach, control, 388.
— on plum, control, 388.
— on sweet potato flour in India, 505.
—, (?) *Septonema* on, 136.
— *equinus* on bees in Brazil, 488.
— *nodosus*, method of determining growth rate of, 619.
— *stolonifer*, in the air in India, 567.
— — in flour in U.S.A., 345.
— — on cork disks in New Zealand, 346.
— — on cotton textiles, 506; control, 30.
— — on strawberry in U.S.A., 388.
— —, resistance of, to low temperatures, 28.
— —, toxicity of fungicides to, 392; of rimocidin to, 395; of 4-*sec*-butylphenol 2,4,5-trichlorophenol and *o*-phenylphenol to, 340.
— —, use of, in testing fungicides, 340.
Rhizosphere, effect of root excretions on, 199.
Rhodiatox, use of, against tomato spotted wilt virus, 405.
Rhododendron, *Exobasidium vaccinii* on, in S. Africa, 460; imported from Belgium, 460.
—, *Pycnostysanus azaleae* on, in England, 240; *Graphocephala coccinea* in relation to, 240; specific reaction to, 240.
— *indicum*, *Exobasidium vaccinii* on, in India, 634.
— *ponticum*, *Phytophthora cinnamomi* can infect, 152.
Rhodotorula aurea on cotton mats, effect of, on acidity, 327.
Rhopalomyzus ascalonicus transmitting *Dahlia* mosaic virus, 369; onion yellow dwarf virus, 369; potato leaf roll virus, 369; turnip mosaic virus, 369.
Rhopalosiphum maidis transmitting barley yellow dwarf virus, 233; cereal yellow dwarf virus, 597.
— *nymphaeae* transmitting cucumber mosaic virus, 119; 369; turnip mosaic virus, 369.
— *prunifoliae* transmitting barley yellow dwarf virus, 233; cereal yellow dwarf virus, 597; cucumber mosaic virus, 119; *Erodium* red leaf virus, 19.
— *pseudobrassicae* transmitting *Brassica nigra* virus, 158; *Matthiola incana* var. *annua* mosaic virus, 491; radish mosaic virus, 43.
Rhus typhina, *Verticillium dahliae* on, in Holland, 478.
Rhynchospora cyperoides, *Cintractia leucoderma* on, in S. Africa, 460.
Rhynchosporium secalis on barley in Austria, 279; U.S.A., 60; varietal reaction to, 549.
Ribes, see also Currants.
— *grossularia*, see Gooseberry.
Riboflavin, production of, by *Eremothecium ashbyi*, 292.
Rice (*Oryza sativa*), *Absidia* on, 458.
—, *Alternaria* and *Aspergillus* on, in India, 505.
—, *Aspergillus flavus-oryzae* on, 458.
—, *Bacterium cinnamomum* on, 458.
[Rice] browning disease in Hungary, 513.
—, *Cercospora oryzae* on, 458.
—, *Cladosporium* on, in India, 505.
—, *Corticium sasakii* on, in Venezuela, 83; control, 575.
—, *Curvularia spicifera* on, in Costa Rica, 372.
—, diseases of, in Italy, 398.
— dwarf virus and *Entyloma oryzae* on, 458.
—, *Ephelis pallida* on, in Sierra Leone, 476.
—, *Fusarium* on, in the Belgian Congo, 422; India, 505.
—, *Gibberella fujikuroi* on, in India, 620; Italy, 457; technique for inoculating, 575.
—, — — f. *oryzae* on, in French Equatorial Africa, 457; control, 458.
—, *Helicobasidium mompa* cannot infect, 546.
—, *Helicoceras oryzae* on, in Indo-China, 628.
—, *Helicoma echinosporium* on, in Japan, 628.
—, 'luxury' disease in Italy, 31.
—, moulds on stored, in India, 505.
—, *Mucor* on, in India, 505.
—, *Ophiobolus miyabeanus* on, in the Belgian Congo, 422; Costa Rica, 372; El Salvador, 302; Greece, 172; Guatemala, 55; India, 294; control, 140, 294, 372, 575; factors affecting, 294; varietal reaction to, 55.
—, *Penicillium* on, in India, 505.
—, — *commune* on, 458.
—, — *frequentans* and *P. luteum* on, in India, 505.
—, *Phoma glumarum* on, 458.
—, *Piricularia oryzae* on, in the Belgian Congo, 422; Costa Rica, 372; El Salvador, 302; Greece, 172; Guatemala, 55; India, 54; Italy, 456; Southern Rhodesia, 475; Venezuela, 82, 399; control, 140, 456, 575; effect of cephalothecin on germination of, 82; factors affecting, 54, 140, 204, 399, 422, 456; technique for inoculating, 575; varietal reaction to, 55, 399, 575.
—, potassium deficiency in, in Indonesia, 140; Japan, 141.
—, *Rhizoctonia oryzae* on, 458.
—, *Sclerospora macrospora* on, 458.
—, *Sclerotinia sclerotiorum* on, in U.S.A., 543.
—, *Sclerotium oryzae* on, in Costa Rica, 372.
— 'straight head' in Japan, 399.
—, *Trichoconis padwickii* on, in Indo-China and the Pacific Islands, 628; comparison of, with *T. caudata*, 628.
—, *Ustilaginoidea virens* on, 458; Brazil, 83; Japan, 455; Thailand, 456; control, 575; factors affecting, 456; pathogenicity of, 574; physiology of, 455; varietal reaction to, 83.
—, *Xanthomonas oryzae* on, 458; Japan, 205.
Ricinus communis, *Xanthomonas ricinicola* on, in S. Africa, 536.
Rimocidin, fungistatic effect of, 395.
Robinia pseudo-acacia, *Pythium* on, in Greece, 172.
— —, *Valsa sordida* on, in Chile, 354.
Rope, *Halophiobolus opacus*, *Helicoma maritimum*, and *H. salinum* on, in Wales, 301.
Rose (*Rosa*), *Bacterium tumefaciens* on, in S. Africa, 552.
—, coal tar fumes causing injury to, in Italy, 29.
— cowl-forming virus in Czechoslovakia, 38.
—, *Diplocarpon rosae* on, in Peru, 208; S. Africa, 552; varietal reaction to, 185.
—, *Griphosphaeria corticola* on, in S. Africa, 552.
—, *Leptosphaeria coniothyrium* on, in S. Africa, 552.
—, manganese deficiency in, in England, 223.
—, *Peronospora sparsa* on, in U.S.A., 608.

[Rose], *Phragmidium mucronatum* on, in Portuguese W. Africa, 302; U.S.S.R., 608.
—, raspberry white root rot can infect, 440.
—, *Sphaceloma rosarum* on, varietal reaction to, 185.
—, *Sphaerotheca pannosa* on, in Holland, 479; S. Africa, 552; U.S.S.R., 129; control, 248, 479, 552, 563; varietal reaction to, 185.
—, *Verticillium albo-atrum* on, in U.S.A., 65.
Rosellinia on coffee in Brazil, 383.
— *aquila* on aspen in France, 209.
— *necatrix* on beet in Great Britain, 415.
— — on olive in Argentina, 338.
— — on vine in Austria, 419.
Rosmarinus officinalis, lucerne dwarf virus can infect, 168.
Rubber (*Hevea brasiliensis*), *Botryodiplodia theobromae* on, in Ceylon, 205; Indo-China, 206.
— brown bast disease in the Belgian Congo, 423; Indonesia, 400; control, 576.
—, *Calonectria rigidiuscula* on, in Indo-China, 206.
—, *Ceratostomella fimbriata* on, in Indonesia, 399.
—, *Corticium salmonicolor* on, in Indo-China, 206; Indonesia, 399; Malaya, 295; control, 206, 295.
—, — *solani* on, in Peru, 294, 458; geographical distribution of, 295.
—, *Curvularia maculans* on, in Indo-China, control, 206.
—, diseases of, breeding against, 575.
—, *Dothidella ulei* on, 458; in Costa Rica, 375; control, 55, 295, 375.
—, *Fomes lignosus* on, in the Belgian Congo, 423; Ceylon, 205, 629; Indonesia, 399.
—, — *noxius* on, in Ceylon, 629; Indonesia, 399.
—, *Ganoderma pseudoferreum* on, in Indonesia, 399.
—, *Gloeosporium albo-rubrum* on, in Indo-China, 206.
—, *Helicobasidium compactum* on, in Indonesia, 399.
—, *Helminthosporium* on, in Indonesia, 400.
—, — *heveae* on, in the Belgian Congo, 422.
—, *Oidium heveae* on, in Ceylon, 83, 205, 630; Indonesia, 399; Java, 630; breeding against, 83; control, 205, 206, 630; varietal reaction to, 630.
—, *Pestalotia palmarum* on, in Indo-China, 206.
—, *Phytophthora* on, 631; in Indonesia, 399.
—, — *palmivora* on, in Indo-China, 206; Indonesia, 399; Malaya, 538.
—, *Poria hypobrunnea* on, in Ceylon, 629.
—, *Sphaerostilbe repens* on, in Indonesia, 399.
—, *Ustilina zonata* on, in Indonesia, 399; Java, 513.
—, *Xylaria thwaitesii* on, in Indonesia, 399.
Rubrogliocladin, fungistatic effect of, on *Botrytis allii*, 569.
Rubus, Phomopsis vepris on, in Spanish Morocco, 577.
— stunt virus on blackberry in Holland, 288.
— — — on raspberry, 192; in Holland, 288.
— *flagellaris, Sphaerotheca humuli* on, in U.S.A., 288.
— *idaeus*, see Raspberry.
— *loganobaccus*, see Loganberry.
— *occidentalis*, see Raspberry.
— *ursinus* var. *loganobaccus*, see Boysenberry.
— *vitifolius*, lucerne dwarf virus can infect, 168.
Rudbeckia, cucumber mosaic virus on, in U.S.A., 273.
Rumex acetosa, effect of, on fungi within the rhizosphere, 142.
Rusts, see Uredinales.
Rutabaga, see Swede.
Rye (*Secale cereale*), *Calonectria nivalis* on, in Austria, 550; Sweden, 103, 550.
—, *Cercosporella herpotrichoides* on, in Denmark, 172; (?) in Sweden, 103.
—, *Claviceps purpurea* on, in Italy, 379.
—, factory gases injurious to, 571.
—, *Ophiobolus graminis* on, breeding against, 548.
—, *Puccinia dispersa* on, 377; in Denmark, 109, 171; control, 176; geographical distribution of, 160.
—, — *graminis* on, 278; in Switzerland, 234.
—, wheat mosaic virus on, varietal reaction to, 235.

Saccharin, effect of, on cereal rusts, 176.
Saccharomyces cerevisiae, inhibition of, by helixin, 620; by phenolic fungicides, 340.
Saccharum officinarum, see Sugar-cane.
— *spontaneum*, *Ustilago scitaminea* on, in India, 87.
Safflower (*Carthamus tinctorius*), *Fusarium* and *Macrosporium carthami* on, in Canada, 632.
—, *Phytophthora cactorum* on, in U.S.A., 206.
—, — *drechsleri* on, in U.S.A., 206, 351, 632.
—, — *parasitica* can infect, 207.
—, *Puccinia carthami* on, in Canada, 632; U.S.A., 459, 631; control, 459, 631; root infection in, 632; transmission of, by seed, 459; varietal reaction to, 632.
Sainfoin, see *Onobrychis sativa*.
Salicylanilide, use of, against fungi on electrical equipment, 29; moulds on citrus, 431; on cork disks and electronic equipment, 346; *Oidium chrysanthemi* on *Chrysanthemum*, 384; paint mildew, 136; *Phytophthora infestans* on tomato, 580.
Salicylic acid, inhibitory effect of, on fungi, 412; on *Botrytis fabae* on broad bean, 445.
Salix, Physalospora miyabeana on, in Holland, 478.
—, *Valsa sordida* on, in Germany, 523.
— *alba, Physalospora miyabeana* on, in Holland, 478.
— — var. *coerulea, Cryptomyces maximus* on, in Great Britain, 463.
— *babylonica, Valsa sordida* on, in Chile, 354.
— *purpurea, Physalospora miyabeana* on, in Holland, 478.
— *viminalis, Stereum purpureum* on, in Chile, 354.
Salsify (*Tragopogon porrifolius*), *Sclerotium rolfsii* on, in Mauritius, 538.
Salt, see Sodium chloride.
Salvia, Puccinia on, in N. America, 578.
— *azurea, Puccinia farinacea* var. *azurea* on, in U.S.A., 578.
— *coccinea, Puccinia impedita* on, in W. Indies, 578.
— *farinacea, Puccinia farinacea* on, in Guatemala and Mexico, 578.
— *fulgens, Puccinia biporula* on, in Mexico, 578.
— *greggii* and *S. lanceolata, Puccinia caulicola* on, in U.S.A., 578.
— *patens*, cucumber mosaic virus on, in U.S.A., 273.
— —, *Puccinia farinacea* on, in Guatemala and Mexico, 578.
Sambucus, see Elder.
Sanagran, use of, against *Xanthomonas malvacearum* on cotton, 115.
Sandovit, use of, with Bordeaux mixture, 561.

Sanvitalia procumbens, Dahlia mosaic virus can infect, 121.
Saponaria, Corticium solani on, in India, 609.
—, *Pythium debaryanum* and *P. indicum* on, in India, 609.
— *vaccaria, Alternaria dianthi* on, in U.S.A., 239; *A. saponariae* synonym of, 239.
Saprolegnia ferax, antagonism of *Penicillium brevi-compactum* to, 621.
Satureja thymbra, Puccinia menthae on, in Palestine, 146.
— *vulgaris, Puccinia menthae* on, in U.S.A., 351.
Sawdust, effect of, on pine root rot, 308.
Scale insects, *Cucurbitaria pithyophila* on, in U.S.A., 384.
— —, *Hypocrella reineckiana* on, in Ceylon, 205.
— —, *Nectria diploa* on, in India, 634.
Scaphytopius transmitting *Vaccinium* stunt virus, 131.
— *acutus* transmitting peach western X-disease virus, 22.
Schizanthus, tobacco leaf curl virus on, in India, 541.
Schizophyllum commune, antagonism of, to basidiomycetes, 583.
— — on apple in Chile, 354; Greece, 256.
— — on cherry, oak, and pear in Greece, 256.
— — on timber in Portugal, 93; control, 156.
— — on vine and walnut in Greece, 256.
Schizothecium longicolle on textiles in Central America, 136.
'Schradan', use of, against the vector of strawberry crinkle and yellow edge, 440.
Scleroracus vaccinii transmitting cranberry false blossom virus, 24.
Sclerospora on barley in U.S.A., 113.
— *butleri* on *Eragrostis plumosa* in India, renamed *Basidiophora butleri*, 436.
— *graminicola* on *Setaria viridis* in France, 209.
— *macrospora* on oats in U.S.A., 379.
— — on rice, 458.
— *sacchari* on sugar-cane, (?) not present in Queensland, 352.
— *sorghi* on sorghum in Tanganyika Territory, 320.
Sclerotineae, taxonomy of, 461.
Sclerotinia on cereals in Japan, 57.
— *borealis* on grasses in Finland, 556.
— *draytoni* on *Gladiolus*, technique for staining, 553.
— *fructicola*, inhibition of, by fungicides, 340; by helixin, 620.
— — on apple in U.S.A., 388.
— — on apricot in Canberra, 612; Tasmania, 335.
— — on nectarine, varietal reaction to, 243.
— — on peach in U.S.A., 388, 389, 612; control, 72, 388, 389, 612.
— — on plum, control, 388; varietal reaction to, 333.
— —, use of, in testing fungicides, 27, 339, 443, 444, 563.
— *fructigena* on apple in Denmark, 559; England, 191, 437; Norway, 244; control, 559, 610; earwig injury in relation to, 437; factors affecting, 191, 437; forms of, 437; production of carbon dioxide by, 49.
— — on apricot, control, 127.
— — on *Corylus avellana* in Italy, 438.
— — on plum in Great Britain, 66.
— *gladioli* on *Freesia*, control, 385.
— — on *Gladiolus* in U.S.A., 119.
— *graminearum* on pine in U.S.S.R., 361.
— *homoeocarpa* on *Agrostis*, 331, 341.
[*Sclerotinia homoeocarpa*] on turf in Canberra, 609; Northern Ireland, 593; U.S.A., 330, 331.
— *kitajimana* can infect larch and pine, 582.
— — on *Cryptomeria japonica* in Japan, 582.
— *laxa*, inhibition of, by an actinomycete, 255.
— — on apple in Denmark, 103; Norway, 559; Sweden, 103.
— — on apricot, control, 127.
— — on cherry in U.S.A., 289.
— — on *Corylus avellana* in Italy, 438.
— — on peach in Chile, 354.
— — on plum in Great Britain, 66; varietal reaction to, 66, 333.
— — on pome and stone fruits in Austria, 536.
— —, toxicity of organic fungicides to, 291.
— *libertiana*, see *S. sclerotiorum*.
— *narcissi* synonym of *Stromatinia narcissi*, 607.
— *sclerotiorum* on bean in Tanganyika Territory, 162; U.S.A., 416; culture of, 516.
— — on *Brassica campestris* in Peru, 208.
— — on cabbage in U.S.A., 96.
— — on crop plants in Greece, 250.
— — on hemp in Italy, 184.
— — on potato in Greece, 6.
— — on rice in U.S.A., 543.
— — on soy-bean in U.S.A., 267.
— — on sunflower in Chile, 242, 372.
— — on *Taraxacum kok-saghyz* in U.S.S.R., 83.
— — on tomato in Greece, 256; U.S.A., 543.
— —, physiology of, 292.
— —, toxic substance secreted by, 30.
— —, toxicity of fungocin to, 395, of mycolytic bacteria to, 130.
— —, use of, in testing fungicides, 26.
— *trifoliorum* can infect pea, 241.
— — on broad bean in England, 187.
— — on clover in Denmark, 172; England, 187, 241; Germany, 286; Holland, 476; Sweden, 125, 286; U.S.A., 18; ascospore discharge in, 241; control, 242, 286; factors affecting, 18, 125, 241; study on, 241; varietal reaction to, 125, 286.
— — on lucerne and *Melilotus alba* in Denmark, 172.
— — on *Onobrychis sativa* in England, 187.
— — var. *fabae* can infect clover and pea, 241.
— — — — on broad bean in England, 187.
Sclerotium ambiguum var. *narcissi* synonym of *Stromatinia narcissi*, 607.
— *cepivorum* on onion in Denmark, 172; England, 195; Holland, 477; control, 195.
— *delphinii* on *Iris* in Holland, 479.
— — on lily in India, 554; host range of, 554.
— *oryzae* on rice in Costa Rica, 372.
— *rhizodes* on turf in U.S.A., 330.
— *rolfsii*, on clover in U S.A., 332, 422.
— — on cotton in El Salvador, 302.
— — on *Cyamopsis tetragonoloba* in India, 386.
— — on groundnut in Tanganyika Territory, 47; control, 421.
— — on *Lespedeza* and lucerne in U.S.A., 332.
— — on salsify in Mauritius, 538.
— — on soy-bean in U.S.A., 332.
— —, toxicity of an actinomycete to, 255; of fungocin to, 395.
— *tuliparum* on tulip in Holland, 479.
Scolecotrichum graminis on turf in U.S.A., 331.
Scolytus transmitting *Ceratostomella ulmi*, 408.
Scopularia phycomyces on timber, control, 94.
Scopulariopsis brevicaulis on bees in Brazil, 488.
— *repens* on cotton textiles, 506.
Scorzonera, Bacterium tumefaciens on, 596.
— *hispanica, Bacterium tumefaciens* on, effect of dinaphthalene acetic acid on, 544.

Secale, wheat mosaic virus on, varietal reaction to, 235.
— *cereale*, see Rye.
Seed-borne diseases, control, 194, 264, 313; of vegetables, 264.
— disinfection in Denmark, 71.
— -testing in Holland, 194.
— treatment against cereal diseases not deleterious to health, 501; against seed-borne diseases, 194.
— —, apparatus for, 502.
Seedox, use of, against *Puccinia carthami* on safflower, 459; cotton disease, 422.
Selenium diethyldithiocarbamate, use of, against paint mildew, 136.
Selenophoma, *Falcispora* and *Pseudoseptoria* synonyms of, 353.
— *brachypodii* on *Brachypodium phoenicoides* in France, 209.
— *donacis*, *S. everhartii*, and *S. obtusa* on turf in U.S.A., 331.
Semesan, use of, as a seed treatment for maize, 113.
— bel, use of, as a seed treatment for potato, 350.
— jr., use of, as a seed treatment for cabbage, chicory, onion, radish, and turnip, 373.
Senecio alatus, *Coleosporium barclayense* on, in India, 411.
— *brachychaetus*, *Puccinia baldensis* on, in Italy, 124.
— *chrysanthemoides*, *Coleosporium senecionis* on, in India, 411.
— *cruentus*, see Cineraria.
— *fuchsii*, *Sphaerotheca fusca* on, 555.
— *graciliflorus*, *Coleosporium senecionis* on, in India, 411.
— *nemorensis*, *Sphaerotheca fusca* on, 555.
— *rufinervis*, *Coleosporium barclayense* on, in India, 411.
Septobasidium in S. Africa, 460.
— *lepidosaphis* on *Lepidosaphes beckii* in Jamaica, 8.
— *pseudopedicellatum* on apple in Peru, 208.
— — on grapefruit, lemon, and orange in India, 182.
— — on peach in Peru, 208.
— — on pear in Peru, 208.
— — on shaddock in India, 182.
Septocyta ramealis synonym of *Rhabdospora ramealis*, 561.
Septogloeum oxysporum on turf in U.S.A., 331.
— *populiperdum* on poplar in Germany, 534.
— *rhopaloideum* (?) conidial state of *Endostigme populina*, 91.
Septol, white, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
(?) *Septonema* on *Circinella*, *Cunninghamella*, *Mucor*, *Rhizopus*, *Syncephalastrum*, and *Zygorhynchus*, 136.
Septoria on flax in Australia, 117.
— on lemon in Brazil, 551.
— *agropyrina* on turf in U.S.A., 331.
— *apii* on celery in Denmark, 224; England, 264; control, 247, 264, 502, 564; varietal reaction to, 362.
— — *-graveolentis* on celery in England, 264; control, 264, 444; varietal reaction to, 362.
— *calendulae* on *Calendula arvensis* in France, 209.
— *cerasi* on cherry in Portugal, 301.
— *chrysanthemella* on *Chrysanthemum* in Great Britain, 384.
— *cisti* on *Cistus albidus* in France, 209.
— *elymi* on turf in U.S.A., 331.
[*Septoria*] *gladioli* on (?) *Freesia* in Holland, 385.
— *glycines* on soy-bean, 458.
— *kok-saghyz* on *Taraxacum kok-saghyz* in U.S.S.R., 84.
— *lavandulae* on lavender in France, 209.
— *limonum* on lemon in Italy, 487.
— *loligena* on turf in U.S.A., 331.
— *lycopersici* on tomato in Abyssinia, 32; Germany, 584; Israel, 361; Mauritius, 538; U.S.A., 303; control, 584.
— *macropoda* on turf in U.S.A., 331.
— *musiva* on poplar in U.S.A., 260, 638; control, 639.
— *nodorum* on cereals in Switzerland, 533.
— — on turf in U.S.A., 331.
— — on wheat in Canada, 596; Germany, 536; longevity of, 596.
— *oudemansii* on turf in U.S.A., 331.
— *petroselini* on parsley in Denmark, 224.
— *phlogis* on *Phlox drummondii* in Holland, 478.
— *pisi* on pea in Southern Rhodesia, 475; Tasmania, 3.
— *polygonicola* on buckwheat in India, 634.
— *secalis* var. *stipae* on turf in U.S.A., 331.
— *tenella*, and *S. triseti* on turf in U.S.A., 331.
— *tritici* on cereals in Switzerland, 533.
— — on wheat in Tanganyika Territory, 225.
— — var. *lolicola* on turf in U.S.A., 331.
— *zeicola* on maize in French Equatorial Africa, 281.
Septotinia populiperda on poplar in U.S.A., 638.
Serratia macerans on silkworms in France, 16.
Sesame (*Sesamum orientale*), *Synchytrium sesamicola* on, in India, 402.
Sesbania aegyptiaca, *Xanthomonas sesbaniae* on, in India, 545.
Setaria italica, *Ustilago crameri* on, geographical distribution of, 160.
— *lutescens*, lucerne dwarf virus can infect, 168.
— *sulcata*, sugar-cane mosaic virus on, in S. Africa, 144.
— *viridis*, *Sclerospora graminicola* on, in France, 209.
Shaddock (*Citrus maxima*), *Penicillium digitatum* and *P. italicum* on, in Israel, 603.
—, *Septobasidium pseudopedicellatum* on, in India, 182.
Shallot (*Allium ascalonicum*), onion yellow dwarf virus on, in Denmark, 172.
—, *Peronospora destructor* on, in Holland, 478; U.S.A., 268.
Shell copper-fungicide, use of, against *Exobasidium vexans* on tea, 355.
Shirlan, use of, against *Botrytis cinerea* on *Freesia*, 385; *Cladosporium fulvum* on tomato, 479.
— AG, use of, against *Cladosporium fulvum* on tomato, 521; *Sclerotinia fructicola* on apricot, 335.
Sida carpinifolia, cotton leaf curl virus on, in Nyasaland, 184.
Silene cucubalus, cucumber mosaic virus on, in U.S.A., 290.
Silicon dioxide, effect of, on *Piricularia oryzae* on rice, 140.
Silkworms, *Serratia macerans* on, in France, 16.
Sinox general, use of, for killing potato haulms, 104.
Sisal (*Agave sisalana*), *Colletotrichum agaves* and *Marssonina agaves* on, in Venezuela, 16.
—, red rot of, in the Dominican Republic and Venezuela, 16.
Sitoria hispidula, *Beauveria* on, in the Pacific Northwest, 116.
Smuts, see Ustilaginales.

Snow fungus dust No. 3979, use of, against *Herpotrichia nigra* on spruce, 360.
Snowberry (*Symphoricarpus albus*), lucerne dwarf virus can infect, 168.
Sodium arsenate, use of, against *Phytophthora cinnamomi* on chestnut, 40; as a timber preservative, 311.
— arsenite, use of, against *Phytophthora cinnamomi* on chestnut, 40; *Rosellinia necatrix* on olive, 338; vine black measles, 590; for killing forest trees, 232; shade trees, 210.
— bicarbonate, use of, against *Penicillium digitatum* and *P. italicum* on orange, 603.
— bichromate, use of, as a timber preservative, 310.
— borate, use of, against *Penicillium digitatum* and *P. italicum* on orange, 603.
— carboxymethylcellulose, moulds in, in Sweden, 345.
— 2-carboxymethylmercaptobenzothiazole, effect of, on *Fusarium bulbigenum* var. *lycopersici*, 393.
— chlorite, use of, against orange moulds, 431.
— chromate and sodium fluoride, use of, as timber preservatives, 310.
— hydroxide, use of, against *Penicillium digitatum* and *P. italicum* on orange, 603.
— mercuricyanolate, effect of, on fungi, 412.
— methyldebenal, effect of, on cereal rusts, 176.
— molybdate, use of, against molybdenum deficiency in clover, 104, 436; lettuce, 417; lucerne and vegetables, 104.
— nitrate, use of, for killing potato haulms, 104.
— pentachlorophenol, use of, against moulds on paints, varnishes, and lacquers, 396; as a timber preservative, 311.
— pentachlorophenolate, use of, against moulds in sodium carboxymethylcellulose, 345.
— tetrachlorophenate, use of, as a timber preservative, 311.
Soil, *Actinomyces* in, in U.S.A., 139.
—, — *scabies* in, in U.S.A., 140.
—, Actinomycetes in, control, 195; technique for isolating, 296.
—, antibiotics inactivated by, 344.
—, *Aspergillus* and *A. fischeri* in, in England, 297.
—, *Bacillus cereus* in, in relation to tobacco frenching, 356.
—, bacteria causing soft-rot in, seasonal variation of, in Japan, 175.
—, *Chaetomium* in, in Germany, 296.
—, *Circinella rigida* in, in England, 208.
—, *Cladosporium* in, in Germany, 296.
—, *Coccospora agricola* in, 296.
—, *Corticium solani* in, in Germany, 296; U.S.A., 640; control, 265.
—, *Didymella lycopersici* in, viability of, 222.
— disinfection against *Corticium solani* on cabbage, cauliflower, and chilli, 216; *Erwinia aroideae* on *Zantedeschia aethiopica*, 17; *Fusarium* on bean and pea, 44; *Pythium debaryanum*, 540; *Rosellinia necatrix* on olive, 338.
— — by carbon disulphide, 471; chloropicrin, 35; ethylene oxide, 350; formaldehyde, 17, 471, 540; mechanized injectors, 247; by mercury compounds, 195.
—, *Epicoccum purpurascens* in, 634.
— fungi, control, 350; by *Trichoderma viride*, 514; ecology of, 142, 296, 514; effect of antibiotics on, 134; *Chelidonium majus* and chicory on, 142; of chlorodane on, 193; of 2,4-D on, 255; of *Rumex acetosa* on, 142; in Germany, 142; technique for examining, 394; for isolating, 514.
[Soil], *Fusarium* in, in Germany, 296.
—, — *dimerum* and *F. merismoides* in, in Canada, 597.
—, — *scirpi* in, in Czechoslovakia, 508.
—, — *solani* var. *martii* in, control, 265.
—, — *vasinfectum* in, in the Belgian Congo, 422; India, 258; antagonism of *Trichoderma viride* to, 422.
—, *Gliocladium roseum* in, in England, 569; production of antibiotics by, 569.
—, *Hansenula mrakii* in, 354.
—, *Lipomyces starkeyi* in, 568.
—, *Myrothecium verrucaria* in, in Italy, 448.
—, *Oospora* in, in Indonesia, 400.
— organisms antagonistic to *Colletotrichum linicola*, 238; *Venturia inaequalis*, 197; technique for isolating, 197, 198.
—, *Penicillium* in, in England, 222, 297; Germany, 296.
—, — *baarnense* in, in England, 297.
—, — *helicum* in, in England, 208.
—, — *luteum* in, in England, 297.
—, *Petriella asymmetrica* in, in Northern Ireland, 208.
—, *Phytophthora* and *P. cactorum* in, 394.
—, — *cinnamomi* in, in U.S.A., 41, 553.
—, — *citrophthora* in, in El Salvador, 302.
—, — *megasperma* in, 394.
—, *Plasmodiophora brassicae* in, lime content in relation to, 527.
—, *Pythium arrhenomanes* in, in Venezuela, 33.
—, — *irregulare* in, in U.S.A., 640.
—, — *ultimum* in, control, 265.
—, *Stachybotrys atra* in, in France, 634.
— sterilization against damping-off of hollyhock, 328.
— — by heat, 458.
— — by steam against brown root rot of tomato, 222; *Colletotrichum atramentarium* on tomato, 222; *Fusarium* on cucumber, 314; *F. oxysporum* on *Gerbera jamesonii*, 555; *Sphacelotheca reiliana* on maize, 324; effect of, on fungus flora, 297.
—, *Trichoderma viride* in, in England, 222.
—, *Verticillium albo-atrum* in, in the Channel Islands, 635.
—, — *glaucum* in, in Germany, 296.
Soja, see Soy-bean.
Solanum, *Phytophthora infestans* on, breeding against, 254.
—, potato leaf roll virus, and potato viruses X and Y on, varietal reaction to, 138.
— *andigenum*, *Phytophthora infestans* on, resistance to, 139.
— *demissum*, *Phytophthora infestans* on, resistance to, 138.
— —, potato dwarf shrub virus can infect, 398.
— —, — viruses A and X on, 138.
— *melongena*, see Eggplant.
— *mericatum*, red currant virus ring spot can infect, 245.
— *nigrum*, cucumber green-mottle mosaic virus can infect, 531.
— —, *Phytophthora infestans* on, 636.
— —, potato dwarf shrub virus can infect, 398.
— —, — viruses X and Y can infect, 203.
— —, red currant ring spot virus can infect, 245.
— —, tomato leaf curl virus attenuated by passage through, 540.
— *nodiflorum*, cucumber green-mottle mosaic virus can infect, 531.
— —, red currant ring spot virus can infect, 245.

[*Solanum*] *tuberosum*, see Potato.
Solignum, use of, against *Corticium salmonicolor* on *Hevea* rubber, 295.
Sophora japonica, *Polyporus hispidus* on, in Portugal, 92.
Sorbose, inhibitory effect of, on fungi, 137.
Sorbus aucuparia, *Nectria galligena* on, in Chile, 373.
Sorghum (*Sorghum vulgare*), chlorosis of, iron-manganese ratios in relation to, 281; lime-induced, in U.S.A., 141.
—, *Colletotrichum graminicola* on, in S. Africa, 536.
— diseases, breeding against, 114.
—, *Gibberella fujikuroi* on, in S. Africa, 536.
—, *Gloeocercospora sorghi* on, in India, 55.
—, *Helminthosporium* on, in S. Africa, 536.
—, *Pseudomonas andropogoni* on, in Argentina, 487; specific reaction to, 487.
—, *Puccinia purpurea* on, in Portuguese W. Africa, 302; Tanganyika Territory, 320.
—, *Pythium* on, in S. Africa, 536.
—, — *arrhenomanes* on, in Venezuela, 33.
—, *Sclerospora sorghi* on, in Tanganyika Territory, 320.
—, *Sphacelotheca cruenta* on, in Somaliland, 33.
—, — *reiliana* on, in Tanganyika Territory, 320.
—, — *sorghi* on, in India, 380, 594; Mexico, 373; Somaliland, 33; Tanganyika Territory, 320; U.S.A., 181; control, 181, 373, 594; geographical distribution of, 160; physiologic races of, 380; viability of, 540.
—, sugar-cane mosaic virus can infect, 460.
—, — virus YM–336 can infect, 256.
—, *Tolyposporium ehrenbergii* on, in Tanganyika Territory, 320.
—, *Xanthomonas holcicola* on, in S. Africa, 536.
— *bicolor* var. *technicus*, *Pseudomonas andropogoni* on, in Argentina, 487.
— *halepense*, lucerne dwarf virus can infect, 168.
— *saccharatum*, *Pseudomonas andropogoni* on, in Argentina, 487.
— *sudanense*, see Sudan grass.
— *verticilliflorum*, sugar-cane mosaic virus on, in S. Africa, 144.
— *vulgare*, see Sorghum.
Sorosporium loudetiae on *Loudetia*, 503; in the Cameroons, 633.
Soy-bean (*Glycine max*), bean yellow dot virus can infect, 266.
—, — — mosaic virus on, 535; in U.S.A., 469.
—, broad bean mottle virus can infect, 469.
—, *Cephalosporium gregatum* on, in Canada, 470; U.S.A., 268.
—, *Cercospora daizu* and *C. kikuchii* on, 458.
—, — *sojina* on, in U.S.A., 416.
—, *Chaetoseptoria wellmanii* on, in Costa Rica, 47.
—, *Chrysanthemum* mosaic virus can infect, 239.
—, *Colletotrichum truncatum* on, in U.S.A., 267.
—, *Corticium solani* on, in U.S.A., 19.
—, cucumber mosaic virus can infect, 435.
—, *Diaporthe phaseolorum* var. *batatatis* on, in U.S.A., 268.
— diseases, bibliography of, 4.
—, *Glomerella glycines* on, 458.
—, *Helicobasidium mompa* on, 546.
—, *Helminthosporium vignicola* on, in U.S.A., 416.
— mosaic virus on soy-bean in Germany, 587.
—, *Peronospora manshurica* on, 458; in Yugoslavia, 367; control, 529; factors affecting, 529; genetics of, 45; physiologic races of, 45; varietal reaction to, 529.
[Soy-bean], *Phakopsora sojae* on, 458.
—, *Phyllosticta* on, in U.S.A., 416.
—, — *sojaecola* on, in U.S.A., 470.
—, *Pseudomonas glycines* on, in U.S.A., 267.
—, — — var. *japonica* on, 458.
—, — *tabacum* on, in U.S.A., 267, 367.
—, *Rhizoctonia* (?) *microsclerotia* on, in U.S.A., 367; host range of, 367.
—, *Sclerotinia sclerotiorum* on, in U.S.A., 267.
—, *Sclerotium rolfsii* on, in U.S.A., 332.
— seed treatment in U.S.A., 220, 587; *Rhizobium* in relation to, 587.
—, *Septoria glycines* on, 458.
—, tobacco ring spot virus can infect, 435.
—, *Xanthomonas phaseoli* var. *sojense* on, in U.S.A., (?) 267, 367; genetics of, 163; varietal reaction to, 163, 422.
Spathodea campanulata, *Calonectria rigidiuscula* can infect, 232.
Spathoglottis diamond spot virus in Hawaii, 329.
Spergon, effect of, on healing of freshly cut potato setts, 293.
— injury to beet, 264.
—, use of, against *Alternaria* on turnip and bacteria on bean, 265; *A. brassicicola*, 340; damping-off of bean, 479; lettuce, 5; pea, 479; *Fusarium caeruleum* on potato, 294; *F. oxysporum* f. *gladioli* on *Gladiolus*, 119, 542; moulds on cork disks, 346; *Peronospora manshurica* on soy-bean, 529; *P. parasitica* on cabbage and cauliflower, 541; *Tilletia caries* and *T. foetida*, 178; turf diseases, 331; as a seed treatment for cereals, non-poisonous character of, 501; maize, 540; pea, 365, 391; *Phaseolus lunatus*, 391; soy-bean, 220, 587; vegetables, 264.
— 120, use of, as a seed treatment for cotton, 422.
— SL, use of, against *Ustilago nuda* on barley, 600.
—, wettable, use of, against *Corticium solani* on *Hevea* rubber, 295.
Spersul, use of, against *Oidium* on mangold, 563; *Sphaerotheca humuli* on pansy, 479; *Venturia inaequalis*, 611.
Sphaceloma arachidis on groundnut, geographical distribution of, 160.
— *krugii* on *Euphorbia prunifolia*, 569.
— *menthae* on peppermint in U.S.A., 351.
— *perseae* on avocado pear in U.S.A., intercepted from Mexico, 132; geographical distribution of, 160.
— *punicae* on pomegranate in U.S.A., intercepted from Italy and Mexico, 131.
— *rosarum* on rose, varietal reaction to, 185.
Sphacelotheca cruenta on sorghum in Somaliland, 33.
— — on sugar-cane in India, 400.
— *destruens* on *Panicum miliaceum*, geographical distribution of, 160.
— *reiliana* on maize in New Zealand, 324; S. Africa, 536.
— — on sorghum in Tanganyika Territory, 320.
— *sorghi* on sorghum in India, 380, 594; Mexico, 373; Somaliland, 33; Tanganyika Territory, 320; U.S.A., 181; control, 181, 373, 594; geographical distribution of, 160; physiologic races of, 380; viability of, 540.
Sphaerella linorum on flax in Canada, 433; varietal reaction to, 552.
Sphaeria alnea synonym of *Plagiostoma alnea*, 89.
Sphaeronema in the air, 504.
— on cacao in Ecuador, 56.

Sphaeropsis necatrix on pine in Italy, 308.
— *pinicola, Diplodia pinea* previously recorded as, in Argentina, 1.
Sphaerostilbe aurantiicola on *Lepidosaphes beckii* in India, 634.
— *repens* on cacao in New Guinea, 9.
— — on *Hevea* rubber in Indonesia, 399.
Sphaerotheca fuliginea on *Phaseolus angularis*, 458.
— — f. *kok-saghyz* on *Taraxacum kok-saghyz* in U.S.S.R., 31, 83.
— *fusca* on cineraria in Holland, 555; *Oidium cinerariae* imperfect state of, 555.
— — on *Doronicum grandiflorum, Senecio fuchsii* and *S. nemorensis*, 555.
— *humuli* on hops in U.S.S.R., 129; Yugoslavia, 354.
— — on pansy in Holland, 479.
— — on raspberry in U.S.A., 24, 288.
— — on *Rubus flagellaris* in U.S.A., 288.
— — on strawberry, control, 248; varietal reaction to, 246.
— *mors-uvae* on currants in U.S.A., 24.
— — on gooseberry in England, 246; Holland, 477; Norway, 559; U.S.A., 24; U.S.S.R., 129; control, 24, 129, 559; varietal reaction to, 130.
— *pannosa* on peach, control, 248.
— — on rose in Holland, 479; S. Africa, 552; U.S.S.R., 129; control, 129, 248, 479, 552, 563; varietal reaction to, 185.
— — var. *persicae* on peach in Yugoslavia, 354.
— *spiraeae* on *Spiraea prunifolia* and *S. thunbergii* in Japan, 578.
Sphaerulina trifolii on clover in Holland, 476.
Spicaria coccospora on nematodes in Great Britain, 16.
— *gracilis* can infect *Diabrotica undecimpunctata*, 116.
— —, *Cephalosporium* and *Melanospora parasitica* parasitic on, in the Pacific Northwest, 116.
— — on *Autographa californica* and *Bruchus pisorum*, 116.
— *rileyi*, temperature relations of, 116.
Spices, canned, moulds and yeasts in, control, 505.
Spider, *Gibellula aranearum* on, in the Pacific Northwest, 116.
Spinach (*Spinacia oleracea*), boron deficiency in, in U.S.A., 227.
—, *Colletotrichum spinaciae* on, in India, 416.
—, cucumber mosaic virus on, 435; in England, 220; Sweden, 417; transmission of, by *Myzus persicae*, 220; to *Datura stramonium, Delphinium, Nicotiana glutinosa*, and *Stellaria*, 417; tobacco, 220, 417.
—, *Cystopus occidentalis* on, in U.S.A., 589.
—, damping-off of, in U.S.A., 289.
—, *Entyloma ellisii* on, in U.S.A., 100.
—, *Erwinia carotovora* on, in U.S.A., 4.
—, factory gases injurious to, 571.
—, manganese deficiency in, in France, 95.
—, *Peronospora effusa* on, in U.S.A., 100.
—, *Pleospora herbarum* on, in Denmark, 224.
—, red currant ring spot virus can infect, 245.
—, tobacco ring spot virus can infect, 435.
—, *Verticillium dahliae* on, in Denmark, 224.
Spiraea prunifolia and *S. thunbergii, Sphaerotheca spiraeae* on, in Japan, 578.
Spondylocladium atrovirens on potato, geographical distribution of, 160.
Spongospora on watercress in England, 256.
— *subterranea* on potato in Belgium, 512; Chile, 573; Great Britain, 625; legislation against, in Brazil, 350.
Spore content of the atmosphere, 618.
— trap, description of an automatic volumetric, 618.
Spores, deposition of, on cylinders, 251.
—, formulae for correcting percentage mortality of, 25.
(?) *Sporobolomyces* in the air, 618.
Sporodesmium putrefaciens on beet in Germany, 536.
Sporormia in the air, 504.
Sporotrichum anglicum, mating types in, 460.
— *spicatum* on cotton textiles, 506.
Spray residues, technique for demonstrating, 501.
Spraying apparatus, 35, 67, 133, 194, 286, 375, 425, 502, 517, 617.
Spruce (*Picea*), *Armillaria mellea* on, in Germany, 534.
—, *Chrysomyxa ledi, C. pyrolatum*, and *C. woronini* on, in Sweden, 147.
—, *Corticium solani* on, in Japan, 154.
—, *Fomes annosus* on, in England, 262; Norway, 92.
—, *Herpotrichia nigra* on, in Switzerland, 360.
—, *Lenzites sepiaria* on, in Alaska, 401.
—, *Leptothyrium* on, in Holland, 152, 637.
—, *Lophodermium piceae* on, in Alaska, 401.
—, *Polyporus fibrillosus* on, in Alaska, 401.
—, potassium deficiency in, in U.S.A., 307.
—, *Stilbum glomerulaespora* on, in Alaska, 401.
Squash (*Cucurbita*), melon mosaic can infect, 472.
— mosaic virus on cucurbitaceae in U.S.A., 368.
—, southern squash mosaic virus on, in U.S.A., 166; host range of, 166.
—, see also Vegetable marrow.
SR 406, see Orthocide.
Stachybotrys atra in soil in France, 634.
— —, toxicity of albidin to, 198.
— *subsimplex* on cacao in the Ivory Coast, 634.
Stachylidium, taxonomy of, 301.
— *bassianum* synonym of *Beauveria bassiana*, 301.
— *bicolor* on *Cattleya* in U.S.A., intercepted from England, 301.
(?) *Stagonospora pini* on pine in Czechoslovakia, 40.
Standard 1 and 2, use of, against *Tilletia caries*, 479.
Steganosporium piriforme on *Acer* in Holland, 478.
Stellaria, cucumber mosaic virus can infect, 417.
Stemphylium in the air, 504; in India, 567.
— on wood pulp in Finland, 155.
—, toxicity of albidin to, 198.
— *consortiale* on apple in Norway, 244.
— *radicinum* on carrot in Canada, 53; Denmark, 224; U.S.A., 164.
— (?) — on strawberry in U.S.A., 562.
— — var. *petroselini* on parsley, control, 224.
— *sarciniforme*, fungistatic effect of fluorinated para-benzoquinones on, 193; of helixin on, 620.
— —, use of, in testing fungicides, 27, 339, 393, 563.
— *solani* on tomato in U.S.A., 303; control, 542.
Stephanodiscus niagarae, Podochytrium cornutum on, in U.S.A., 89.
Sterculia rhinopetala and *S. tragacantha*, cacao virus 1 A and *Calonectria rigidiuscula* can infect, 232.
Stereospermum suaveolens, Synchytrium stereospermi on, in India, 402.
Stereum in S. Africa, 460.
— *abietinum* on *Tsuga heterophylla* in Canada, 215.

[*Stereum*] *chailletii* on *Abies balsamea* in Canada, 413.
— *hirsutum* on timber in India, 95; Portugal, 92.
— *princeps* on oak in India, 409; *S. scytale* synonym of, 409.
— *purpureum* on apple in Holland, 287; U.S.A., 244, 287; control, 287; factors affecting, 245; varietal reaction to, 244.
— — on plum in Great Britain, 66; Holland, 390.
— — on *Salix viminalis* in Chile, 354.
— *rugisporum* on timber in Alaska, 401.
— *sanguinolentum*, culture of, 93.
— — on *Abies balsamea* in Canada, 50, 51, 413.
— — on wood pulp in Finland, 155.
— *scytale* synonym of *Stereum princeps*, 409.
Stigmina populi (?) conidial state of *Endostigme populina*, 91.
Stilbum glomerulaespora on spruce in Alaska, 401.
Stock, see *Matthiola incana*.
Stone fruits, deficiency disease of, in Switzerland, 223.
— —, virus diseases of, in Switzerland, 223; technique for detecting, 127.
— —, see also Fruit.
Storage disorders of apple, 66, 242, 244, 333, 559, 610; apricot, 335; beet, 415; citrus, 430, 543; fruit in U.S.A., 388, 449; *Gladiolus*, 119; maize, 602; mango, 71, 132; onion, 99; pear, 242; peony flowers, 329; potato, 31, 105, 451, 534; prunes, 252; rice, 505; soy-bean, 220; spinach, 4; sweet potato, 102; vegetables, 449; vine, 167.
Strawberry (*Fragaria vesca*) black root rot, control, 561.
—, *Botrytis cinerea* on, in U.S.A., 441.
—, chlorotic phyllody of, in U.S.A., 337.
—, *Corticium solani* on, in U.S.A., 562.
— crinkle virus, control, 440; transmission of, by *Capitophorus fragariae*, 440.
—, *Cylindrocarpon* on, in U.S.A., 562.
—, *Dendrophoma obscurans* on, in Canada, 442; overwintering of, 443.
—, deterioration of, during marketing, in England, 450.
—, *Diachea leucopoda* on, in S. Australia, 344.
—, *Diplocarpon earliana* on, in Canada, 442; Jamaica, 8.
—, *Fusarium oxysporum* and *F. solani* on, in U.S.A., 562.
—, *Gnomonia fragariae* var. *fructicola* on, 443; renamed *G. fructicola*, 443.
— green petal disease in England, 440, 558.
— leaf chlorosis in England, 558.
— mild crinkle virus in England, 171.
—, *Mycosphaerella fragariae* on, in Canada, 442; Greece, 173.
—, *Phoma* (?) *radicis* and *P. terrestris* on, in U.S.A., 562.
—, *Phytophthora fragariae* on, in Canada, 103; Great Britain, 23, 441; New Zealand, 70; U.S.A., 71; control, 71, 103; factors affecting, 23, 70; physiologic races of, 70; varietal reaction to, 70, 441.
—, *Pythium ultimum* on, in U.S.A., 562.
—, *Rhizophagus* on, in U.S.A., 562.
—, *Rhizopus stolonifer* on, in U.S.A., 388.
— root rots in England, 441.
—, *Sphaerotheca humuli* on, control, 248; varietal reaction to, 246.
—, *Stemphylium* (?) *radicinum* on, in U.S.A., 562.
— 'sudden yellows' disease in England, 558.
— summer wilt in England, 441.
—, *Verticillium* on, in England, 69.
[Strawberry, *Verticillium*] *albo-atrum* on, in England, 69; control, 561; varietal reaction to, 319, 561.
—, — *dahliae* on, in England, 69.
—, virus diseases of, in England, 171, 390; U.S.A., 288; technique for indexing, 441; transmission of, by *Amphorophora rubi*, 131; aphids, 390; *Capitophorus fragariae*, 68, 131, 390; *C. minor*, 288; *Macrosiphum pelargonii*, *Myzaphis rosarum*, *Myzus ornatus*, and *M. porosus*, 131.
—, virus-free stocks of, 66.
— virus 1 in U.S.A., 440.
— — 3, transmission of, by *Capitophorus fragariae*, 246.
— viruses of group 1 in England, 558.
— yellow edge virus on strawberry, 500; in U.S.A., 337; control, 440; transmission of, by *Capitophorus fragariae*, 440; varietal reaction to, 337.
— yellows virus in Canada, 499; transmission of, by *Capitophorus fragariae*, 499.
Streptomyces, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271.
— in the air, 504.
— on stored wheat in Canada, 599.
— 3560 in soil, production of rimocidin and terramycin by, 395.
— *albus*, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271.
— —, production of thiolutin by, 335.
— *antibioticus* and *S. lavendulae*, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271.
— *venezuelae*, production of chloramphenicol by, 448.
— *violaceus*, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270, 271.
Streptomycete A 67, effect of antibiotic from, on *Myrothecium verrucaria*, *Pythium debaryanum*, and *P. irregulare*, 449.
Streptomycin, inactivation of, in soil, 344.
—, inhibition of *Erwinia amylovora*, *Pseudomonas*, *P. angulata*, *P. coronafaciens*, *Xanthomonas beticola*, and *X. vesicatoria* by, 480.
—, review of literature on, 345, 621.
—, use of, against *Bacterium tumefaciens*, 595; *Erwinia amylovora* on apple, 335; *Pseudomonas medicaginis* f. sp. *phaseolicola*, 415; on bean, 220, 468; *Ustilago nuda* on barley, 485; *Xanthomonas phaseoli* on bean, 220, 468.
Streptothricin, inactivation of, in soil, 344.
Strobilomycetaceae, taxonomy of, 147.
Stromatinia narcissi on *Narcissus* and *Zephyranthes* in Canada, 607; synonymy of, 607.
Strophanthus dichotomus, *Hemileia strophanthi* on, in Java, 633.
— *hispidus*, *Hemileia buntingii* on, in the Gold Coast and Uganda, 633.
— —, *Hemileia strophanthi* on, in Uganda, 633.
— *sarmentosus*, *Hemileia smallii* on, in French Equatorial Africa, 633.
— —, — *strophanthi* on, in the Ivory Coast, 633.
Stylopage rhicnacra on amoebae in Great Britain, 16.
Stysanus microsporus on *Eschweilera luschnathii* in Brazil, 488; *Platypus difficilis* associated with, 489.
Subtilin, review of work on, 621.
—, use of, as a food preservative, 29.
Sudan grass (*Sorghum sudanense*) chlorosis, lime-induced, of, in U.S.A., 141.
— —, *Colletotrichum graminicola* on, in S. Africa, 536.

[Sudan grass], lucerne dwarf virus can infect, 168.
— —, *Xanthomonas holcicola* on, in S. Africa, 536.
Sugar beet, see Beet.
Sugar-cane (*Saccharum officinarum*), *Cephalosporium sacchari* on, in India, 298; Mexico, 375.
—, *Ceratostomella paradoxa* on, in Formosa, 300; Mauritius, 537; Queensland, 352; control, 537; factors affecting, 352; varietal reaction to, 537.
—, *Cercospora kopkei* on, in Java, 207; Queensland, 352.
—, — *longipes* and *C. vaginae* on, in Mexico, 375.
— chlorotic streak in British Guiana, 145; Formosa, 300; Mauritius, 537; Queensland, 352; control, 145, 300; factors affecting, 352, 537; varietal reaction to, 145, 352.
—, *Corticium rolfsii* on, in Mexico, 375.
—, *Cytospora sacchari* on, in Mexico, 375.
— diseases in Queensland, 299; breeding against, in Formosa, 143; control, 299; legislation against, in Queensland, 299; world distribution of, 298.
—, Fiji disease of, in Queensland, 352.
—, *Gibberella fujikuroi* on, in Java, 298; Mexico, 375.
—, — — var. *subglutinans* on, in Java, 298.
—, *Helminthosporium sacchari* on, in Argentina, 515; Jamaica, 8.
—, *Leptosphaeria sacchari* on, in Mexico, 375.
— mosaic virus, maize as an indicator plant for, 88.
— — — on *Cymbopogon nardus* and *C. winterianus* in Brazil, 459; *Cymbopogon* mosaic virus (?) a strain of, 459.
— — — on *Digitaria horizontalis* in S. Africa, 144.
— — — on maize, varietal reaction to, 459.
— — — on *Setaria sulcata* and *Sorghum verticilliflorum* in S. Africa, 144.
— — — on sugar-cane in Formosa, 143, 300; Mexico, 375; the Philippines, 119; Queensland, 352; S. Africa, 143, 576; U.S.A., 352; control, 144; effect of, on yield, 352; losses caused by, 143, 352; transmission of, by *Aphis maidis*, 143, 375; to maize and sorghum, 460; varietal reaction to, 143, 144, 300, 352, 375.
—, *Physalospora tucumanensis* on, in Formosa, 299, 300; India, 87, 298, 400; Mexico, 375; U.S.A., 298, 300; culture of, 299, 400; transmission of, by soil, 87; varietal reaction to, 143, 298, 300, 539.
—, *Phytophthora* on, in U.S.A., 298.
—, potash deficiency in, in Jamaica, 8.
—, *Pythium arrhenomanes* on, in Mexico, 375.
— ratoon stunting disease, 297; in Queensland, 352.
—, *Sclerospora sacchari* on, (?) eradicated from Queensland, 352; varietal reaction to, 352.
— seed piece decay in U.S.A., 299.
—, *Sphacelotheca cruenta* on, in India, 400.
— streak virus, varietal reaction to, 537.
—, *Ustilago scitaminea* on, in Brazil, 207, 401; India, 87, 298; Mauritius, 537; S. Africa, 537, 576; Southern Rhodesia, 475; control, 87, 401, 475, 537; varietal reaction to, 298, 401, 537, 539.
— virus YM-336 on sugar-cane in Puerto Rico, 256; transmission of, to sorghum, 256.
—, *Xanthomonas albilineans* on, in Brazil, 375; British Guiana, 144, 145; Mauritius, 537; Queensland, 352; control, 144; effect of, on yield, 145; factors affecting, 145, 352; losses caused by, 352; transmission of, by beetles and rats, 145; varietal reaction to, 144.
[Sugar-cane, *Xanthomonas*] *vasculorum* on, in Mauritius, 537; not found at Mossman in Queensland, 352.
Sugar-lime, use of, against *Gladiolus* fluorine scorch, 554.
Sulfinette, use of, against *Exobasidium vexans* on tea, 355.
Sulphonamides and Sulphones, effect of, on cereal rusts, 176.
Sulphur injury to potato, 319.
—, use of, against *Actinomyces* in soil, 140; *A. scabies* on potato, 319; *Cercospora personata* on groundnut, 563; *Corticium solani* on *Hevea* rubber, 295; *Diplocarpon rosae* on rose, 552; *Isariopsis griseola* on bean, 162; *Leveillula taurica* on chilli and eggplant, 563; manganese deficiency of rose, 223; *Oidiopsis* on *Zizyphus jujuba*, 55; *Oidium* on mangold, 563; *O. heveae* on *Hevea* rubber, 206, 631; *Phytophthora parasitica* on papaw, 339; *Plasmopara viticola* on vine, 102; *Puccinia graminis* on wheat, 371; *P. menthae* on peppermint, 351; *P. triticina* on wheat, 371; *Rosellinia necatrix* on olive, 338; *Sphaerotheca pannosa* on rose, 552, 563; *Uncinula necator* on vine, 6, 48, 229; *Venturia inaequalis*, 126, 611; with DDT, against potato leaf roll, 451; as a treatment for cut potato setts, 293.
—, activated, use of, against *Oidium heveae* on *Hevea* rubber, 630.
—, Baluchistan, use of, against *Colletotrichum capsici* on cotton, 594.
—, colloidal, use of, against *Podosphaera leucotricha* on apple, 247, 496; *Ravenelia sessilis* on *Albizzia lebbek*, 568; *Ustilago scitaminea* on sugar-cane, 87; *Venturia inaequalis*, 247, 496, 610.
— dioxide injury to plants, 571.
—, dispersible, use of, against *Venturia inaequalis*, 341, 611.
— gases, effect of, on Bordeaux mixture on vine in Italy, 419.
—, magnetic '70' paste, use of, against *Venturia inaequalis*, 437.
—, microfine, use of, against *Venturia inaequalis*, 67.
—, micronized, use of, against *Sphaerotheca mors-uvae* on gooseberry, 559; *Venturia inaequalis*, 437.
—, wettable, use of, against *Coccomyces hiemalis* on cherry, 498; *Erysiphe polygoni* on bean, 529; *Podosphaera leucotricha* on apple, 243, 479, 495; pear, 242; powdery mildews, 248; *Puccinia prunispinosae* on plum, 613; *Sclerotinia fructicola* on peach, 389; *Uncinula necator* on vine, 229, 275; *Venturia inaequalis*, 67, 126, 534; *V. pirina*, 497; *Xanthomonas pruni* on peach, 389.
Sulphuric acid, use of, against *Xanthomonas malvacearum* on cotton, 605; with ferrous sulphate against *Elsinoe ampelina* on vine, 316.
Sunflower (*Helianthus annuus*), *Bacterium tumefaciens* on, 321, 376.
—, *Erysiphe polyphaga* on, in Holland, Switzerland, and Yugoslavia, 148.
—, *Plasmopara halstedii* on, in Yugoslavia, 609.
—, potassium deficiency in, chlorine ions in relation to, 400.
—, *Puccinia helianthi* on, in Somaliland, 33; Yugoslavia, 187.
—, *Sclerotinia sclerotiorum* on, in Chile, 242, 372.

[Sunflower], tobacco ring spot virus on, carbohydrate content of host affecting, 317.
Supergermite, use of, against *Sclerotinia gladioli* on *Gladiolus*, 120.
Superol, use of, against *Stereum purpureum* on apple, 287.
Swedes (*Brassica napobrassica*), boron deficiency in, *Erwinia carotovora* associated with, in Canada, 53.
—, *Erwinia carotovora* on, 321; in Canada, 53.
—, nickel toxicity to, in Scotland, 631.
—, *Plasmodiophora brassicae* on, in Canada, 53, 158; Germany, 527.
—, turnip mosaic virus on, in Canada, 363; host range of, 363.
—, *Xanthomonas carotae* on, 321.
Sweet clover, see *Melilotus*.
Sweet pea (*Lathyrus odoratus*), bean yellow mosaic virus can infect, 535.
— —, broad bean mottle virus can infect, 469.
— —, clover vein mosaic virus on, comparison of, with Wisconsin pea stunt virus, 98.
— —, *Corynebacterium fascians* on, pathogenicity of, 229.
— —, pea enation mosaic virus on, in Germany, 312, 313.
— —, (?) *Pseudomonas pisi* on, in Tanganyika Territory, 160.
— —, Wisconsin pea stunt virus on, comparison of, with clover vein mosaic, 98.
Sweet potato (*Ipomoea batatas*), *Aspergillus* spp. in flour from, in India, 505.
— —, *Ceratocystis fimbriata* on, 294; in U.S.A., 101.
— —, *Fusarium bulbigenum* var. *batatas* on, control, 227.
— —, *Helicobasidium mompa* on, 546.
— —, internal cork virus disease of, in U.S.A., 455.
— —, *Macrophoma edulis* on, in Japan, 102.
— —, *Rhizopus* in flour from, in India, 505.
— — witches' broom disease in Java, 165.
— sorghum, see *Sorghum saccharatum*.
— William, see *Dianthus barbatus*.
Swertia, Cronartium himalayense on, in India, 524.
Symphoricarpus albus, see Snowberry.
Syncephalastrum, (?) *Septonema* on, 136.
Synchytrium ajrekari on bean in India, 99.
— *endobioticum* on potato in Canada, 53; Denmark, 172; Germany, 536, 573; Italy, 76; Switzerland, 533; biotype G of, 573; control, 105; legislation against, in Brazil, 350; Germany, 421; technique for staining of, 293; varietal reaction to, 53, 77, 105, 421, 573.
— *nyctanthidis* on *Nyctanthes arbor-tristis* in India, 402.
— *sesamicola* on sesame in India, 402.
— *stereospermi* on *Stereospermum suaveolens* in India, 402.
Synnematium on insects, list of species of, 283.
Syringa vulgaris, see Lilac.

Tag 331, use of, against *Venturia inaequalis*, 53.
Tagetes patula, Bacterium tumefaciens on, control, 322, 481; effect of chemicals and antibiotics on, 595.
— — mosaic virus can infect *Datura stramonium* and *Nicotiana glutinosa*, 172.
— — — — on *Tagetes patula* in Denmark, 172.
Tamarindus indica, Xanthomonas tamarindi on, in India, 479.
Tamarix anglica, Fomes tamaricis on, in Portugal, 92.
Tanalith, use of, as a timber preservative, 310, 311.
Taphrina caerulescens on oak in U.S.A., 37.
— *deformans* on peach in Somaliland, 32; U.S.A., 497; Yugoslavia, 594.
— *pruni* on plum in Yugoslavia, 336.
— *ulmi* on elm in Chile, 354.
Tar creosote, use of, against *Fomes annosus* on timber, 640.
— oil, use of, as a timber preservative, 310.
—, see also Coal tar, Creosote.
Taraxacum kok-saghyz, Alternaria tenuis, Phoma kok-saghyz, Pleospora kok-saghyz, Puccinia taraxaci, and *Rhizoctonia* on, in U.S.S.R., 83.
— —, root rot of, in U.S.S.R., 84.
— —, *Sclerotinia sclerotiorum* (as *S. libertiana*) on, in U.S.S.R., 83.
— —, *Septoria kok-saghyz* on, in U.S.S.R., 84.
— —, *Sphaerotheca fuliginea* f. *kok-saghyz* on, in U.S.S.R., 31, 83.
Tartar emetic, use of, against tomato spotted wilt virus, 405.
Tat-c-lect, use of, against *Sclerotinia homoeocarpa* on *Agrostis palustris*, 331.
Taxus baccata, see Yew.
— *cuspidata, Phytophthora cinnamomi* can infect, 152.
Tayssato, use of, as a seed treatment for oats, 108.
Tea (*Camellia sinensis*), *Armillaria mellea* on, in Mauritius, 538.
—, *Calonectria theae* on, in Ceylon, 210.
—, *Corticium invisum* on, in Ceylon, 210.
—, *Cylindrocladium* on, in Ceylon, 211; India, 461.
—, *Exobasidium reticulatum* on, in Japan, 258.
—, — *vexans* on, in Ceylon, 355, 403, 516, 517, 579; India, 461; Japan, 258; Java, 210; Malaya, 517; control, 210, 258, 355, 403, 461, 516, 517, 518, 579; factors affecting, 210, 517; *Helopeltis* in relation to, 210; summary of discussions on, 210.
—, *Gloeosporium theae-sinensis* and *Guignardia camelliae* on, in Japan, 258.
—, *Leptothyrium theae* on, in Ceylon, 211.
—, *Pestalotia theae* on, in Somaliland, 33.
—, phloem necrosis virus of, in Ceylon, 211.
—, *Phoma theicola* on, in Somaliland, 33.
—, *Phyllosticta theifolia* on, in Japan, 258.
— root failure in Ceylon, 210.
— yellows in Nyasaland, 421.
Teak (*Tectona grandis*), *Olivea tectonae* on, and root rot of, in Pakistan, 214.
Technique for assaying fungicides, 502; copper-containing, 565; deposits from, 502.
— for assessing number of micro-organisms in apple juice, 570.
— for culturing fungi in a moist chamber, 73; *Phytophthora infestans*, 254; *Ustilago tritici*, 11; *Venturia*, 341.
— for detecting *Chalara quercina* on oak, 357; clamp-connexions in resupinate basidiomycetes, 353; cucumber mosaic virus on *Chrysanthemum*, 491; endotrophic fungi in roots, 623; foliar deficiencies in citrus and coffee, 114; phony peach virus in roots, 68; potato phloem necrosis, 624; potato virus X, 76, 254, 453; potato viruses, 75, 535; stone fruit virus diseases, 127, 420; symptoms of resistance and susceptibility of wheat to *Puccinia graminis*, 110; tobacco mosaic virus, 211.
— for determining antagonism of micro-organisms to bacteria and fungi, 253; available trace elements in soil, 32; bacteria in soil, 544; disease resistance in breeding material, 455; distribution of *Xanthomonas stewarti* in maize, 62;

fluorine content of smoke-damaged plants, 74; lignin in cork oak, 409; molybdenum in soil, 32; pentachlorophenol content of treated timber, 216; *Pseudococcus njalensis* population, 427; resistance of apple to *Venturia inaequalis*, 50; of cotton textiles to fungi, 29; of flax to *Melampsora lini*, 117; spray residues on apple and cherry, 133; susceptibility of individual plants to viruses, 634; tobacco mosaic virus particle weight, 212.
[Technique] for examining soil fungi, 394.
— for extracting *Dahlia* mosaic virus, 121; tobacco mosaic virus, 149.
— for evaluating anti-fungal substances, 193; fungicides, 25, 133, 193, 502, 549, 565; fungistatic agents, 504; timber preservatives, 94, 154, 156, 215, 216, 263, 465.
— for indexing strawberry virus diseases, 441.
— for injecting soil disinfectants, 247.
— for inoculating beans with *Pseudomonas medicaginis* f. sp. *phaseolicola* and *Xanthomonas phaseoli*, 219; cabbage and cauliflower with *X. campestris*, 96; cotton with *X. malvacearum*, 327; flax with *Melampsora lini*, 185; rice with *Gibberella fujikuroi*, 575; with *Piricularia oryzae*, 575; wheat with wheat mosaic virus, 12.
— for isolating ascomycetes from soil, 296; *Bacillus polymyxa*, 531; fungistatic micro-organisms from soil, 197, 198; *Phytophthora infestans*, 254; tobacco mosaic virus, 211; *Verticillium albo-atrum* from soil, 351.
— for measuring growth of fungal hyphae, 619; inhibition of spore germination, 340; turbidity variation in bacterial cultures, 544.
— for obtaining saliva from leafhoppers, 318.
— for preparing fungus inocula, 292; micro-injection needle, 344.
— for preserving cultures of bacteria, 313; larger fungi, 251; by lyophilization, 568.
— for sampling bacteria in the air, 504; fungi in the air, 251, 504, 566, 567, 618.
— for selecting cacao seeds resistant to *Marasmius perniciosus*, 424.
— for staining bacterial flagella, 229; fungi, 553; zoospores and zygotes of *Synchytrium endobioticum*, 293.
— for standardizing actinomycete colony size, 255.
— for testing anti-fungal secretions from living orchid rhizomes, 74; potato eye cuttings for virus diseases, 571; seed maize for disease, 14, 61.
Tectona grandis, see Teak.
Teepol, use of, as a spreader, 80.
Tennessee 26-lime, use of, against *Coccomyces hiemalis* on cherry, 129.
Tenuipalpus pseudocuneatus associated with citrus leprosis, 326.
Termitomyces globulus and *T.* spp. on a termite nest in the Belgian Congo, 433.
Terramycin, inhibition of *Corynebacterium* by, 480; *Pseudomonas* by, 54, 480; *P. coronafaciens*, *P. glycinea*, *Xanthomonas*, and *X. vesicatoria* by, 480; of *X. phaseoli* on bean by, 468.
—, production of, by *Streptomyces*, 395.
—, review of work on, 345, 621.
Tersan, use of, against *Fusarium oxysporum* f. *gladioli* on *Gladiolus*, 119; *Sclerotinia gladioli* on *Gladiolus*, 120; sugar-cane seed piece decay, 299; turf diseases in U.S.A., 331; *Urocystis cepulae* on onion, 4, 99.
— pyrax, use of, against *Urocystis cepulae* on onion, 99.
Tetrabromo-*p*-benzoquinone, toxicity of, to *Alternaria brassicicola*, 340.
Tetrachlorobenzoquinone, use of, against *Tilletia foetida* on wheat, 228. (See also Spergon.)
Tetrachloroethane and tetrachloroethylene, use of, against transit rots of fruit, 388, 389.
Tetrachloronaphthoquinone, use of, against powdery mildews, 248.
Tetrachloronitrobenzene, use of, as a fungicide, 26.
Tetrachlorophenol, fungicidal properties of, 340.
—, use of, as a timber preservative, 310; with copper-8-quinolinolate, 136.
2, 3, 6, 7-tetrachloro-5, 6, 7, 8-tetrahydronaphthoquinone, fungicidal properties of, 72.
Tetragonia expansa, red currant ring spot virus can infect, 245.
Tetrahydro-iso-quinoline-phenanthrene compounds, toxicity of, to *Sclerotinia fructicola* and *Stemphylium sarciniforme*, 340.
Tetrahydropyrimidine derivatives, fungicidal properties of, 443.
Tetra iodoethylene, effect of, on *Venturia inaequalis*, 341.
Tetramethylthiuram monosulphide, histidine as an antagonist of, 392.
Tetraposporium, taxonomy of, 147.
Tetroc, use of, against *Pythium* on pea, 3.
Tetropium, association of, with *Ophiostoma polonicum*, 42.
Teucrium chamaedrys, *Leveillula taurica* on, in France, 209.
Textiles, fungi on, causing deterioration, 135.
—, microbiological deterioration of, 196; control, 570.
—, *Schizothecium longicolle* on, in Central America, 136.
—, see also Cotton, Flax, Wool.
Thalictrum, *Puccinia triticina* on, specific reaction to, 376.
— *speciosissimum*, *Puccinia triticina* on, in Portugal, 376.
Theobroma cacao, see Cacao.
Thielavia in soil in England, 142.
Thielaviopsis basicola, inhibition of, by ustilagic acid, 448.
— — on clover in U.S.S.R., 187.
— — on cotton in U.S.A., 383.
— — on *Crotalaria juncea* in Southern Rhodesia, 475.
— — on endive, 274.
— — on lucerne in U.S.S.R., 187.
— — on tobacco in Canada, 249, 259; U.S.S.R., 187; control, 249, 259; geographical distribution of, 160; varietal reaction to, 370.
— — on tomato in England, 222.
— — on vegetable marrow in Italy, 274.
— — on vegetables in Germany, 584.
2,2′-thiobis (4-chlorophenol), fungicidal properties of, 72.
Thiocarbamate, use of, against *Plasmopara viticola* on vine, 591.
Thiocarbanilide, use of, against *Tilletia caries*, 484.
Thiocyanodinitrobenzene, a constituent of Bayer 2317W, 26.
—, use of, against *Phytophthora* and *Plasmopara*, 26.
Thiolutin, use of, against *Erwinia amylovora* on apple, 335.
Thiosan, use of, against damping-off of lettuce, 5.
Thiotox, use of, against *Sclerotinia fructicola* on apricot, 335.
Thiourea, use of, against citrus moulds, 431.

Thiovit, use of, against *Podosphaera leucotricha*, 479; with copper fungicides, 49, 561.
Thiram, gaseous toxicants from, 193.
—, histidine as an antagonist of, 392.
—, inhibition of *Aspergillus niger*, *Botrytis allii*, *B. cinerea*, *Fusarium avenaceum*, and *Penicillium italicum* by, 193.
— injury to tomato, 522.
—, use of, against *Alternaria* on turnip, 265; damping-off of bean, maize, and pea, 479; vegetables, 290; *Fusarium bulbigenum* var. *niveum* on melon and watermelon, 473; moulds on cork disks, 346; *Podosphaera leucotricha*, 290; *Sclerotinia homoeocarpa* on *Agrostis palustris*, 331; *Tilletia caries*, 484; *Urocystis cepulae* on onion, 4; *Venturia inaequalis*, 67, 126, 290, 341, 496, 611; as a seed treatment for maize, 430; vegetables, 264.
— pyrax, use of, against *Urocystis cepulae* on onion, 99.
Thrips tabaci transmitting tomato spotted wilt virus, 452.
Thuja compacta, *Phytophthora cinnamomi* on, in U.S.A., 553.
— *plicata*, *Didymascella thujina* on, in Alaska, 401.
— —, nitrogen and phosphorus deficiency in, in U.S.A., 307.
— —, *Polystictus cuneatus* on, in Alaska, 401.
— —, *Poria weirii* on, in Alaska, 401.
Thymol, use of, against *Penicillium digitatum* and *P. italicum* on orange, 603; as a timber preservative, 465.
Tilachlidium and *T. ramosum* on insects, 283.
Tilia, see Lime tree.
Tillantin 1875, use of, as a seed treatment for *Asparagus*, 224.
Tilletia in the air in Canada, 28.
— *brevifaciens* on *Agropyron intermedium*, 378.
— — on wheat in Germany and U.S.A., 378; control, 547.
— *caries* and *T. foetida* on wheat, see under Wheat.
— *intermedia* on wheat in Yugoslavia, 323.
— *pallida* on turf in U.S.A., 331.
— *pennisetina* on *Pennisetum hohneckeri* in India, 147.
— *triticoides* on wheat in Yugoslavia, 373.
Tillex as a seed dressing for tea, 578.
Timber, *Asterostroma ochroleucum* on, in Great Britain, 154.
—, *Auricularia mesenterica* var. *lobata* on, in Portugal, 92.
—, blueing fungi on, effect of, on preservation, 309.
—, *Ceratocystis coerulescens* on, in Italy, 464.
—, — *piceae* on, in Italy, 464; Sweden, 42.
—, *Ceratostomella coerulea* on, in Sweden, 42.
—, — *penicillata* on, in Sweden; associated with *Ips typographus*, 42.
—, — *pini* on, in Sweden, (?) associated with *Ips acuminatus*, 42; control, 94.
—, *Chaetomium globosum* on, 262.
—, *Coniophora fodinarum* on, in S. Africa, 460.
—, — *puteana* on, 262; in Finland, 155; Great Britain, 154; Sweden, 414, 526; control, 263, 465, 584; effect of, 526.
—, *Coprinus* on, in Great Britain, 154; effect of, 526.
—, *Daedalea quercina* on, 526; in Great Britain, 154.
—, *Daldinia concentrica* on, in Great Britain, 154; effect of, 526.
— decay and stains in Canada, 308; U.S.A., in houses, 583.
[Timber], deterioration of pulpwood from, in U.S.A., 155.
—, *Endoconidiophora virescens* on, viability and control of, 41.
—, *Fomes annosus* on, in Portugal, 92; control, 465.
—, — *ferruginosus* on, in Great Britain, 154.
—, — *fomentarius* on, in India, 410.
—, — *igniarius* on, in Sweden, effect of sulphite treatments on, 94.
—, — *lignosus* and *F. lividus* on, in India, 95.
—, — *roseus* on, in Great Britain, 154.
—, fungi on, technique for testing resistance to, 263.
— heart rot in U.S.A., control, 216.
—, *Hormiscium gelatinosum* on, control, 154.
—, *Lentinus lepideus* on, 526; in Finland, 155; Great Britain, 154; Sweden, 414, 526; control, 155, 156, 215, 465, 584; effect of, 526.
—, — *subnudus* on, in India, 95.
—, *Lenzites abietina* on, control, 263, 584.
—, — *sepiaria* on, 526; in Europe, 154; Finland, 155; Great Britain, 154; India, 311; N. America, 637; Sweden, 414, 526; effect of, 526.
—, — *striata* on, in India, 95.
—, — *trabea* on, in Portugal, 92; control, 154, 156, 361.
—, *Merulius himantioides* on, in Great Britain, 154.
—, — *lacrymans* on, in Great Britain, 41, 154; New Zealand, 33; Portugal, 93; Sweden, 414, 526; compatibility between strains of, 509; control, 41, 262, 465, 584; effect of, 526.
—, — *molluscus* and *M. pinastri* on, in Great Britain, 154.
—, — *tignicola* on, in Denmark, 525.
—, moulds on, in Sweden, 42.
—, nitrobenzene oxidation and sulphonation of decayed, 526.
—, *Ophiostoma canum* on, in Sweden, 42; *Blastophagus minor* associated with, 42.
—, — *polonicum* on, in Sweden, 42; beetles associated with, 42.
—, *Orbicula spadicea* on, 262.
—, *Ozonium auantracum* on, see *Coprinus* on.
—, *Paxillus panuoides* on, in Great Britain, 154; Portugal, 92.
—, *Peniophora gigantea* on, in Great Britain, 154.
—, *Phialophora* on, 262.
—, *Polyporus arcularius* on, in Portugal, 92.
—, — *destructor* on, in Portugal, 93.
—, — *ostreiformis* on, in India, 95.
—, — *quercinus* on, in Japan, 353; effect of, on weight, 305.
—, — *sulphureus* on, in India, 410.
—, — *tulipiferus* on, control, 215.
—, *Polystictus sanguineus* on, control, 156.
—, — *steinheilianus* on, in India, 95.
—, — *versicolor* on, in Great Britain, 154; Portugal, 92; control, 465.
—, *Poria* on, 262.
—, — *incrassata* on, control, 156.
—, — *medulla-panis* and *P. megalopora* on, in Great Britain, 154.
—, — *microspora* on, control, 156, 361.
—, — *monticola* on, in Great Britain, imported from Canada, 154.
—, — *radiculosa* on, control, 156.
—, — *vaillantii* on, in Great Britain, 154; control, 465; effect of, 526.
—, — *vaporaria* on, in Switzerland, 94; control, 263.
—, — *xantha* on, in Great Britain, 154; Portugal, 93.

[Timber] preservation, accounts of, 1, 414.
— —, difficulty of, in presence of blueing fungi, red heart and tyloses, 309–310.
— — by the Boucherie process, 93; empty-cell process, 309; full-cell process, 95, 309; kyanization process, 157, 263; Lowry and open tank process, 95; Rueping process, 95, 309.
— — in Canada, 309; Germany, 263, 309, 310; Great Britain, 414; India, 94; Italy, 414; New Zealand, 1; U.S.A., 41, 154, 156, 309, 310, 311.
— — with ammonium fluoride, 525; ascu, 95; betanaphthol in oil, 310; Boliden salts, 2, 584; borax-boric acid, 310; boric acid, 2; celcure, 2, 310; cellu-san, 361; chromium acidic, 156; coal tar, 310; coal tar creosote, 2, 309, 310, 311; coal tar oil, 94, 309, 310; copper arsenate, 311; copper chromate, 311; copper naphthenate, 2, 156, 311; copper sulphate, 311; crank-case oil, 310; creosote, 2, 95, 156, 157, 309, 311; creosote oil, 310; creosote petroleum, 309; cresol oil, 156; dichlorpheno-oxymethylthiocyanate, 465; fluosilicic acid, 525; greensalt, 2; ilman lahosuoj, 584; mercuric chloride, 157, 263, 310; lahotuho-K 33, 584; No-D-K, 310; orthocresol-sulphur resin, 156; osmoplastic, 310; osmosar, 310; paraformaldehyde, 465; PDA, 310; pentachlorophenol, 2, 94, 154, 156, 216, 310, 311, 584; phenyl mercury oleate, 154, 311; pine oil, 156; pinene, pinene hydrochloride, and pinene pentachloride, 156; potassium fluoride, 310; sodium arsenate, 311; sodium bichromate, 311; sodium chromate and sodium fluoride, 310; sodium pentachlorophenate, 311; sodium tetrachlorophenate, 311; tanalith, 310, 311; tar oil, 310; tetrachlorophenol, 310; thymol, 465; turpentine oil, 156; UA salt, 310; water-gas tar, 310; Wolman salts, 2, 95, 584; zinc chloride, 2, 156, 310, 311; zinc chloride chromated, 2, 310, 311; copperized, 2; zinc fluosilicate, 525; zinc metarsenite, 2, 310; zinc naphthenate, 2, 311; zinc silicofluoride, 584.
— preservatives, 1, 414, 640.
— —, testing of, 94, 154, 156, 215, 263, 414, 465, 640; by the agar block method, 154; nutrient agar method, 156; soil block method, 154, 156; service records for, 414.
—, *Pullularia pullulans* on, in Sweden, 42; control, 94.
— 'red heart', effect of, on preservation, 310.
— rotting fungi, effect of, on cell walls, 262; remote chemical action of wood on, 93.
—, *Schizophyllum commune* on, in Portugal, 93; control, 156.
—, *Scopularia phycomyces* on, use of, as a test fungus, 94.
—, *Stereum hirsutum* on, in India, 95; Portugal, 92.
—, — *rugisporum* on, in Alaska, 401.
—, *Torula herbarum* on, in S. Africa, 460.
—, *Trametes cinnabarina* on, effect of, 526.
—, — *cubensis* on, in India, 95.
—, — *serialis* on, in Great Britain, 154.
—, — *trogii* on, in Portugal, 92.
—, *Trichoderma* (?) *viride* on, control, 361.
—, *Trichosporium tingens* on, in Sweden, 42; use of, as a test fungus, 94.
—, yeasts on, in Sweden, 42.
Tiurax, use of, against *Venturia inaequalis*, 67.
Tobacco (*Nicotiana tabacum*), (?) *Ascochyta gossypii* on, in U.S.A., 356.
—, *Aspergillus melleus* on, in Sierra Leone, 476.
—, *Bacterium tumefaciens* on, effect of tomato juice on, 481; position of initial tumour cell in relation to type of tumour produced by, 423.
[Tobacco], bean yellow dot virus can infect, 266.
— brown root rot, varietal reaction to, 370.
—, carnation mosaic virus can infect, 122.
—, *Corticium solani* on, control, 249.
—, cucumber green-mottle mosaic virus can infect, 531.
—, — mosaic virus on, 220, 356, 417, 435.
—, damping-off of, control, 249.
— diseases in U.S.A., 212.
— enation disease in Mauritius, 537.
— enations in Italy, 259.
—, *Erysiphe cichoracearum* on, in Italy, 461; control, 90, 461, 634.
— etch virus on chilli and *Datura stramonium*, 520.
— — — on tobacco in Canada, 519, 520; electromicrographs of, 169; strains of, 519; transmission of, by *Myzus persicae*, 520; varietal reaction to, 519, 520.
— — — on tomato in U.S.A., 34.
— frenching in U.S.A., 226, 356; *Bacillus cereus* in relation to, 356.
—, *Fusarium oxysporum* var. *nicotianae* on, in India, 579; U.S.A., 34.
—, — *solani* f. *nicotianae* on, in India, 579.
— leaf curl virus on potato and *Schizanthus* in India, 541.
— — — — on tobacco in E. Africa, 421; Mauritius, 537; Southern Rhodesia, 475.
—, lucerne mosaic virus on, effect of guanazolo on, 318.
— mosaic virus on bean, action of water on inoculations with, 316; factors affecting, 317.
— — — on chilli, breeding against, in U.S.A., 418.
— — — on *Cyphomandra betacea* in U.S.S.R., 274.
— — — on *Nicotiana glutinosa*, 34, 123; factors affecting, 317.
— — — on *Primula obconica*, 18.
— — — on tobacco in Argentina, 344; Brazil, 403, 579; Canada, 53, 462; Japan, 403; U.S.A., 302, 518; allergic reaction of, 404; antibiotics not controlling, 319; breeding against, 355; control, 344; correlation between age of aerial organs and their virus content, 211; detection and isolation of, by electrophoresis, 211; differentiation of strains of, by complement fixation, 318; dinitrophenyl derivatives of some strains of, 355; effect of carbobenzoxylysine polypeptides on, 90; fungi on, 369; of guanazolo on, 318; of indolebutyric acid on, 221; of lysine polypeptides on, 404; of primary ionization of, 149; electron microscopy of, 169, 212, 276; factors affecting, 169, 317, 474; inactivation of, by palm extracts, 150; by *Trichoderma*, 403; infra-red dichroism of nucleoprotein in, 634; isoelectric points of strains of, 150; multiplication of, 90; new strain of, 462; nucleic acids in, 518; overwintering of, 579; particle size and weight of, 212; polymerization of, 89; raspberry leaf tannins in relation to, 149; strains of, 211; technique for diagnosing, 421; for extracting, 149; transmission of, by dodder, 403; *Nicotiana glutinosa*, 211; ultracentrifuge study on, 404; varietal reaction to, 355, 356; virus increment curves from particle counts in, 368.
— — — on tomato, 635; in Holland, 580; U.S.A., 34, 302, 520; effect of malachite green on, 223; electromicrographs of, 169; factors

affecting, 223; host range of, 303; transmission of, by seed, 520; varietal reaction to, 542.
[Tobacco] necrosis virus can infect cacao, 169.
— — — on bean, action of water on inoculations with, 317; factors affecting, 317.
— — — on cowpea, 518.
— — — — on tobacco in U.S.A., 518; effect of dihydrogen phosphate on infection by, 474; of fungi on, 369; electron microscope study of, 275; mutation in, 518; resemblance between southern bean mosaic virus and, 218.
— — — — on tulip, 123; Germany and Holland, 607.
—, *Peronospora tabacina* on, in Canada, 150; U.S.A., 89, 150, 226; losses caused by, 226.
—, phosphorus deficiency in, in Southern Rhodesia, 475.
—, *Phytophthora parasitica* var. *nicotianae* on, in U.S.A., 33, 212; breeding against, 579; control, 213; distribution of, in U.S.A., 33; effect of, on water movement, 461; losses caused by, 212; varietal reaction to, 212, 579.
— 'polvillo' virus in Argentina, 344.
—, potato dwarf shrub virus can infect, 398.
—, — virus X on, 203, 293, 520; age-induced variation in susceptibility to, 519; movement of, in leaf parenchyma, 519; technique for detecting, 76.
—, — — Y on, 293.
—, *Pseudomonas angulata* on, in Tanganyika Territory, 225.
—, — *solanacearum* on, in U.S.A., 33, 543.
—, — *tabacum* on, in Germany, 536; Italy, 90; factors affecting, 134.
—, *Pythium* on, control, 249.
—, — *aphanidermatum* on, in Venezuela, 33.
— rattle virus, 123; host range of, 405; raspberry leaf tannins in relation to, 149.
—, red currant ring spot virus can infect, 245.
— ring spot virus on bean in Germany, 535, 587; factors affecting, 267, 317.
— — — — on celery, 46.
— — — — on *Datura stramonium*, 138, 435.
— — — — on *Gladiolus* in Canada, 54; U.S.A., 385, 435; host range of, 435.
— — — — on *Gomphrena globosa*, 138.
— — — — on *Nicotiana glutinosa*, factors affecting, 317.
— — — — on potato, 138.
— — — — on sunflower, factors affecting, 317.
— — — — on tobacco, 246; in Italy, 90; factors affecting, 317, 474.
— rosette virus on *Cyphomandra betacea* in Tanganyika Territory, 225.
— soil-borne diseases in Canada, 249.
— streak virus on bean in U.S.A., 219; factors affecting, 219, 267; transmission of, by seed, 219.
—, *Thielaviopsis basicola* on, in Canada, 249, 259; U.S.S.R., 187; control, 249, 259; geographical distribution of, 160; varietal reaction to, 370.
—, tomato spotted wilt virus on, in Argentina, 46, 344; action of water on inoculations with, 317.
—, — 'witches' broom' virus can infect, 463.
—, turnip mosaic virus can infect, 363.
— veinal necrosis virus on potato, serology of, 201.
— virus diseases in U.S.A., 212; symptoms of, 302.
— white necrosis virus, indicators for, 405.
Toddalia asiatica, *Gymnopuccinia pulneyensis* on, in India, 88.
Tolyposporium ehrenbergii on sorghum in Tanganyika Territory, 320.
Tomato (*Lycopersicon esculentum*), *Alternaria* on, 265; in Italy, 521; varietal reaction to, 542.
—, — *brassicicola* in seed of, in Denmark, 224.
—, — *solani* on, 535; in the Channel Islands, 635; Germany, 584; Italy, 521; Jamaica, 8; U.S.A., 289, 303, 392, 520, 620; control, 342, 392, 521, 542, 564, 584, 620, 635; varietal reaction to, 542.
—, — *tomato* on, control, 564.
— aspermy virus on *Chrysanthemum*, 284; in Great Britain, 384.
— — — on tomato, effect of, on nuclear division, 635.
— — — on *Zinnia* in U.S.A., 284.
—, (?) *Bacillus subtilis* on, in India, 390.
—, *Bacterium tumefaciens* on, 106, 230; control, 322; effect of aureomycin hydrochloride on, 175; metabolism of, 276.
— big bud virus (?) identical with lucerne witches' broom virus, 125.
— — — — on *Crotalaria juncea* in New S. Wales, 225.
— blossom-end rot in U.S.A., 213, 462; factors affecting, 214; varietal reaction to, 214, 462.
—, boron deficiency and excess in, in India, 522.
—, *Botrytis cinerea* on, (?) in the Channel Islands, 635; Northern Ireland, 593; control, 463, 593, 635; toxic action of, 253.
— brown root rot in England, 222.
— bushy stunt virus, electron microscope study of, 275.
— — — — on *Datura meteloides*, virus increment curves for, 368.
—, celery calico virus on, in U.S.A., 34.
—, *Cercospora fuligena* on, in Japan, 151.
—, *Chaetomium* and *C. cochliodes* on, in England, 222.
—, *Cladosporium fulvum* on, in the Channel Islands, 635; Holland, 151, 479; Northern Ireland, 593; breeding against, 227; control, 291, 479, 521, 593; physiologic races of, 151; varietal reaction to, 542.
—, *Colletotrichum atramentarium* on, in England, 222.
—, — *phomoides* on, in U.S.A., 303, 392, 521; breeding against, 581; control, 194, 342, 392, 521, 620; varietal reaction to, 581.
—, *Corticium sasakii* can infect, 83.
—, *Corynebacterium michiganense* on, 230; in India, 36; New Zealand, 319; factors affecting, 107.
—, — *sepedonicum* on, factors affecting, 417.
—, cucumber mosaic virus on, in Austria, 406; Holland, 580; U.S.A., 34; transmission of, by *Macrosiphum euphorbiae*, 580; western type of, 34.
—, *Cylindrocarpon radicicola* on, in England, 222.
—, *Didymella lycopersici* on, 222; in the Channel Islands, 635; Denmark, 172; control, 564, 635.
—, diseases of, 264, 462.
—, *Erwinia* can infect, 218.
—, — *carotovora* on, physiologic races of, 235; physiologic study on, 321.
—, *Fusarium* on, 265, 543; in England, 222.
—, — *bulbigenum* var. *lycopersici* on, in U.S.A., 290, 462; breeding against, 213, 227; control, 290, 393, 581; cultural study on, 35; factors affecting, 636; inhibition of, by helixin, 620; physiologic races of, 35; physiology of, 450; production of lycopersicin by, 450; root injury in relation to, 581; use of, in testing fungicides,

27; varietal reaction to, 36, 213, 227, 260, 304, 462, 542.
[Tomato], *Gelasinospora* on, in England, 222.
—, *Glomerella cingulata* on, in U.S.A., 36.
— greywall or internal browning in U.S.A., 259.
— leaf curl virus, effect on virulence of passage through chilli, *Datura stramonium*, and *Solanum nigrum*, 540.
—, *Leveillula taurica* on, in Israel, 361.
—, lucerne witches' broom virus on, 125, 332.
—, molybdenum deficiency in, control, 104.
—, moulds on, in U.S.A., control, 637.
—, *Petriella asymmetrica* on, in England, 222.
—, *Phoma destructiva* on, in Israel, 362; Queensland, 259; control, 259, 542; varietal reaction to, 542.
—, *Phytophthora cryptogea* on, in New Zealand, 522; Scotland, 213.
—, — *infestans* on, in Brazil, 580; Canada, 226, 636; the Channel Islands, 635; Germany, 584; Israel, 361; Jamaica, 8; Mexico, 372; Mozambique, 511; Northern Ireland, 593; S. Africa, 537; U.S.A., 35, 289, 303, 392, 406, 520, 636; breeding against, 636; control, 35, 226, 247, 303, 372, 392, 444, 521, 542, 564, 580, 584, 635; factors affecting, 8, 9, 226, 303, 406; leaf penetration by, 398; physiologic races of, 151; varietal reaction to, 542, 636.
—, — *parasitica* on, in Scotland, 213; Venezuela, 380; control, 213, 227.
—, — *verrucosa* on, in England, 256; Scotland, 213.
—, potato dwarf shrub virus can infect, 398.
—, — virus X on, 203; effect of malachite green on, 223.
—, — — Y can infect, 203.
—, — witches' broom virus on, 53, 332.
—, *Pseudomonas atrofaciens* on, production of protopectinase by, 230.
—, — *solanacearum* on, control, 356.
—, — *tomato* on, in Italy, 36; *Pseudomonas punctulans* synonym of, 36.
—, *Pythium aphanidermatum* on, in India, 526.
—, — *debaryanum* on, control, 540; enzymic study of, 623.
— ring spot virus, serology of, 318.
— rosette, see Tobacco mosaic virus.
—, *Sclerotinia sclerotiorum* on, in Greece, 256; U.S.A., 543; control, 543; toxic effect of, 30.
—, *Sclerotium delphinii* can infect, 554.
—, *Septoria lycopersici* on, in Abyssinia, 32; Germany, 584; Israel, 361; Mauritius, 538; U.S.A., 303; control, 584.
— spotted wilt virus on bean, action of water on inoculations with, 317.
— — — — on *Chrysanthemum* in Great Britain, 384.
— — — — on *Dahlia* in Holland, 478.
— — — — on groundnut in Brazil, 46; rosette may be due to, 46.
— — — — on lettuce, transmission of, to groundnut, 46.
(?) — — — — on peony in England, 491.
— — — — on potato in New S. Wales, 451; transmission of, by *Thrips tabaci*, 452.
— — — — on *Primula obconica*, 18.
— — — — on tobacco in Argentina, 46, 344; action of water on inoculations with, 317.
— — — — on tomato in Argentina, 46; Brazil, 405.
—, *Stemphylium solani* on, in U.S.A., 303, 542.
— streak virus in Southern Rhodesia, 475.
—, *Thielaviopsis basicola* on, in England, 222.
[Tomato], tobacco etch virus on, in U.S.A., 34.
—, — mosaic virus on, 635; in Holland, 580; U.S.A., 34, 302, 520; breeding against, 542; effect of malachite green on, 223; electromicrographs of, 169; factors affecting, 223; host range of, 303; transmission of, by seed, 520.
—, *Verticillium albo-atrum* on, in the Channel Islands, 635; Denmark, 172; England, 222; U.S.A., 290; breeding against, 259; control, 290; factors affecting, 35; varietal reaction to, 259.
—, virus disease of, in Kenya, 173.
—, *Volutella ciliata* on, in England, 222.
— 'witches' broom' virus in Italy, 463; transmission of, to tobacco, 463.
—, *Xanthomonas vesicatoria* on, in Israel, 362; U.S.S.R., 213.
—, zinc deficiency in, 462.
Torula on cotton textiles, control, 30.
— *herbarum* on timber in S. Africa, 460.
— *marginata* on pine in U.S.A., 307.
Torulopsis pinus on pine in Sweden, 568.
— *sphaerica*, mating types in, 460.
Toxaphene, use of, against tomato spotted wilt virus, 405.
Toxoptera graminum transmitting cereal yellow dwarf virus, 597.
TP 13, composition of, 26.
— —, use of, against *Botrytis tulipae* on tulip, 479; *Phytophthora infestans* on potato, 26; *Venturia inaequalis* and *V. pirina*, 477.
Trace elements in plants and animals, book on, 195.
Trachelospermum jasminoides, *Ascochyta trachelospermi* on, in Italy, 492.
Tragopogon porrifolius, see Salsify.
Trametes cervinus, culture of, 93.
— *cinnabarina*, culture of, 93.
— — on oak, 409.
— — on timber, 526.
— —, physiology of, 413.
— *cubensis* on timber in India, 95.
— *dickinsii* on oak in India, 410.
— *heteromorpha* on conifers in Japan, 353.
— *mollis* on broad-leaved trees in N. America, 215.
— *serialis*, culture of, 93.
— — on timber in Great Britain, 154.
— *squalens* on pine in Portugal, 92.
— *trogii* on timber in Portugal, 92.
Tree tomato, see *Cyphomandra betacea*.
Trees, broad-leaved, *Merulius nothofagi* on, in New Zealand, 33.
—, —, resupinate fungi on, in N. America, 215.
—, endotrophic fungi in roots of, 623.
—, mycorrhiza of, in U.S.S.R., 622.
Triangularia bambusae, antagonism of *Penicillium brevi-compactum* to, 621.
Trichlorodinitrobenzene, use of, as a fungicide, 26.
1, 1, 2-trichloroethane and trichloroethylene, use of, against decay of harvested fruit, 388.
Trichloro-methyl-thiotetraphthalimide, a constituent of TP 13, 26.
Trichlorophenol, fungicidal properties of, 340.
2:4:6-trichlorophenoxyacetic acid, fungicidal properties of, 249.
2, 3, 5-trichloro-6-phenyl-*p*-quinone, fungicidal properties of, 72.
Trichlorotrinitrobenzene, fungicidal properties of, 26.
Trichoconis padwickii on rice in Indo-China and the Pacific Islands, 628; *T. caudata* may be a synonym of, 628.

Trichoderma, effect of rimocidin on, 395.
—, inactivation of tobacco mosaic virus by, 403.
— in soil in England, 142.
— on electrical insulating tapes, 136.
— on timber in Sweden, 42.
— on wood pulp in Finland, 155.
—, use of, in testing fungicides, 26, 29.
— *viride*, antagonism of, to *Botrytis cinerea* and *Corticium solani*, 270–271; *Fusarium vasinfectum*, 422.
— —, control of soil fungi by, 514.
— —, culture of, 93.
— —, effect of, on growth of cotton, 238.
— — in soil in England, 222.
— — on cellulose fibres, 569.
— — on cork disks in New Zealand, 346.
— — on filter paper, 450.
— (?) — on timber, control, 361.
— —, production of gliotoxin by, 449; of viridin by, 528.
— —, toxicity of albidin to, 198.
Tricholoma and *Tricholomopsis* in Jamaica, Trinidad, and Venezuela, 300.
Trichomerium in Brazil, 33.
Trichophyton interdigitale, antagonism of actinomycete to, 255.
— *mentagrophytes*, inhibition of, by helixin, 620; by rimocidin on, 395.
— *roseum*, use of, in testing fungicides, 27.
Trichosanthes dioica, *Blastotrichum chowdhuryi* on, in India, 391.
Trichoscyphella, see *Dasyscypha*.
Trichosporium tingens on timber in Sweden, 42; control, 94.
— *vesiculosum* on *Casuarina equisetifolia* in Mauritius, 537.
Trichothecin, effect of, on *Fusarium oxysporum* var. *cubense*, 135.
Trichothecium cystosporium on nematodes in England, 283.
— *roseum*, antagonism of *Penicillium brevi-compactum* to, 621; of, to plant viruses, 369; *Tilletia caries*, 243; *Venturia inaequalis*, 244.
— — on apple in Denmark 560.
— —, production of trichothecin by, in soil, 135.
— —, spore formation in, 571.
Trifolium, see Clover.
Trifungol, use of, against *Botrytis tulipae* on tulip, 479.
Trigonella foenum-graecum, *Peronospora trigonella* on, in Italy, 514.
Triplochiton scleroxylon, *Calonectria rigidiuscula* can infect, 232.
Tripomol, use of, against *Phomopsis dauci* on carrot, 163.
Tripospermum, *Triposporium*, *T. cambrense*, and *T. elegans*, taxonomy of, 147.
Triscabol, use of, against *Botrytis tulipae* on tulip, 479.
Trisetum flavescens, *Puccinia graminis* on, 278.
Triticum, see Wheat.
Tritirachium album in wheat rhizosphere, 634.
Tritisan, pentachloronitrobenzene a constituent of, 26.
—, use of, against *Tilletia* (?) *brevifaciens* and *T. caries* on wheat, 547; as a fungicide, 26.
Triton B 1956, use of, against *Botrytis gladiolorum* on *Gladiolus*, 186; *Sphaerotheca humuli* on *Rubus flagellaris*, 288; as a spreader, 435; with zineb, 236.
Tropaeolum, *Heterosporium tropaeoli* on, in Mauritius, 538.
[*Tropaeolum*] *majus*, *Chrysanthemum* mosaic virus can infect, 239.
Tryblidiella rufula on coffee in the Ivory Coast, 282.
Trypodendron lineatum, association of, with timber-staining fungi, 464.
Tsuga heterophylla, *Fomes annosus* and *F. robustus* on, in Alaska, 401.
— —, fungi on, in Canada, 215.
— —, *Lophodermium* and *Polystictus abietinus* on, in Alaska, 401.
Tuberaceae in U.S.A., note on, 165.
Tubercinia hederae on ivy in Portugal, 146.
Tubeufia helicomyces, perithecial state of *Helicosporium phragmitis*, 89.
'Tuckahoe', the sclerotium of *Polyporus tuberaster*, in Canada, 91.
Tulip (*Tulipa*), antibiotic from, in relation to soil microbiology, 134.
—, *Botrytis tulipae* on, in Holland, 479.
—, *Puccinia prostii* on, in Palestine, 146.
—, — *tulipae* on, in Germany, 536; Palestine, 146.
—, *Sclerotium tuliparum* on, in Holland, 479.
— tobacco necrosis virus on, 123; in Germany and Holland, 607.
—, *Ustilago tulipae* on, in Greece, 256.
Tulisan, use of, against coffee physiological leaf fall, 173.
Turf, *Calonectria nivalis* on, in Northern Ireland, 593; U.S.A., 330.
—, *Corticium solani* and fairy rings on, in U.S.A., 330, 331.
—, fungi on, list of, in U.S.A., 330.
—, *Gloeocercospora sorghi* on, in U.S.A., 331.
—, *Helminthosporium vagans* on, control, 331.
—, *Phyllachora* (?) *graminis* on, in Holland, 476.
—, *Rhizoctonia* on, in U.S.A., 331.
—, *Sclerotinia homoeocarpa* on, in Canberra, 609; Northern Ireland, 593; U.S.A., 330, 331.
Turnip (*Brassica rapa*), *Alternaria* on, 265.
—, — *brassicae* on, in Kenya, 173.
—, cucumber mosaic virus on, in England, 221.
— diseases, seed-borne, control of, 264.
—, *Erwinia carotovora* on, 321; in Holland, 312.
— mosaic virus on kohlrabi in Germany, 369; transmission of, by *Myzus circumflexus* and *Rhopalomyzus ascalonicus*, 369.
— — — on swede in Canada, 363; host range of, 363.
— — — on turnip in Germany, 369; electron microscopy of, 275; transmission of, by aphids, 369.
—, nickel toxicity to, in Scotland, 631.
—, *Phoma* on, 265.
—, *Plasmodiophora brassicae* on, in Germany, 527; U.S.A., 265.
—, *Xanthomonas carotae* on, 321.
Turpentine oil, use of, as a timber preservative, 156.
Tylenchulus semipenetrans in relation to citrus spreading decline, 543.
Typhula on grasses in Finland, 556.
— on wheat in Canada, 103.
— *borealis* on grasses in Finland, 556.
— *idahoensis* on turf in U.S.A., 330.
— *ishikariensis* on wheat in Japan, 177.
— *itoana* on *Alopecurus pratensis* in Finland, 556.
— — on cereals in Japan, 57.
— — on grasses in Finland, 556.
— — on turf in U.S.A., 330.
— — on wheat in Japan, 177.
Tyrothricin, review of work on, 621.

UA salt, use of, as a timber preservative, 310.
UCC 201 and UCC 640, use of, as a seed treatment for cotton, 422.
Ulex, see Gorse.
Ulmus, see Elm.
Ultra-violet light, effect of, on cucumber green-mottle mosaic virus, 420; *Phagus pruni*, 423; plant viruses, 169.
— —, use of, in diagnosing plant virus diseases, 420.
Umbellularia californica, Kabatiella phoradendri f. *umbellulariae* on, in U.S.A., 38.
— —, *Pseudomonas lauracearum* on, in U.S.A., 261.
Uncinula necator on vine in Algeria, 229; Austria, 419; Cyprus, 48; Germany, 275; Italy, 6, 102; Switzerland, 223, 316; U.S.S.R., 166; control, 6, 48, 166, 223, 229, 248, 275, 316, 419; factors affecting, 6, 103.
Uraecium synonym of *Uredo*, 401.
Uramon, use of, against *Pseudomonas solanacearum* on tobacco, 543.
Uranium chloride, nitrate, and sulphate, effect of, on *Corynebacterium michiganense* and *Xanthomonas juglandis*, 107.
Uranyl nitrate, use of, against moulds on electronic equipment, 346.
Urea, use of, against *Botrytis fabae* on broad bean, 445.
Uredinales, culture of, on synthetic media, 508.
— in France, Macedonia, and Palestine, 146; Sweden, 147.
— on *Ononis*, 146.
—, symposium of papers on, 146.
Uredinopsis filicina on *Abies homolepis* in Japan, 402.
Uredo, Uraecium synonym of, 401.
Urena lobata, Botrytis cinerea on, in Kenya, 16.
Urocystis agropyri on *Poa* in India, 147.
— *cepulae* on onion in U.S.A., 4, 99, 228.
— *gladiolicola* on *Gladiolus* in U.S.A., 119.
— *oxalidis* on *Oxalis tuberosa* in Peru, 208.
— *poae* synonym of *U. agropyri*, 147.
— *tritici* on wheat in U.S.A., 178; breeding against, 428; physiologic races of, 59.
Uromyces in the air in India, 540.
—, monograph on, 146.
— on *Astragalus*, 146.
— *aloes* on *Aloë* in Tanganyika Territory, 225.
— *appendiculatus* on bean in Portuguese W. Africa, 302; Puerto Rico, 362; Tanganyika Territory, 162; U.S.A., 416, 467; Western Australia, 467; control, 444; factors affecting, 317; germination of uredospores in, 72; physiologic races of, 467; varietal reaction to, 266, 467.
— — on *Phaseolus angularis*, 458.
— *betae* on beet in Palestine, 147.
— *caryophyllinus* on carnation in Palestine, 147.
— *ciceris-arietini* on *Cicer arietinum*, geographical distribution of, 160.
— *decoratus*, lysis of uredospore germ tubes in, 446.
— *dianthi* on carnation, varietal reaction to, 553.
— *dolicholi* on *Dolicholus* and pigeon pea, geographical distribution of, 160.
— *fabae* on broad bean, 458; germination of uredospores in, 72.
— *pazschkeanus* on *Vigna venulosa* in Sierra Leone, 476.
— *phlei-michelii* on *Phleum pratense* in France, 209.
— *pisi* on pea in Palestine, 147.
— *poae* on *Poa hackeli* in Palestine, 147.
[*Uromyces*] *striatus* on *Medicago hispida* and *M. turbinata* in Spanish Morocco, 577.
— *trifolii* on clover in India, 387, 539; Spanish Morocco, 577.
— *trifolii-repentis* on clover in Palestine, 147.
— *vignae* on cowpea in Sierra Leone, 476; germination of uredospores in, 72.
Urophlyctis alfalfae on lucerne in Greece, 7.
Urospermum picroides, (?) lettuce mosaic virus can infect, 368.
Urtica, see Nettle.
Uspulun, use of, against *Corticium sasakii* on rice, 575; damping-off of lucerne, 436; of *Cryptomeria*, larch, and *Paulownia*, 153; as a seed treatment for rice, 575.
— -universal, use of, against *Rosellinia necatrix* on olive, 338.
Ustilagic acid, an antibiotic produced by *Ustilago maydis*, 448.
Ustilaginales, deformations induced by, 503.
—, heterothallism in, 72.
— in the air in Canada, 28.
— in Asia, 147; world distribution of, 147.
—, taxonomy of, 209.
Ustilaginoidea virens on rice, 458; in Brazil, 83; Japan, 455; Thailand, 456; control, 575; factors affecting, 456; pathogenicity of, 574; physiology of, 455; varietal reaction to, 83.
Ustilago in the air in Canada, 28; China, 134; Great Britain, 619.
— on *Bromus catharticus* in U.S.A., 284.
— *avenae* in the air, 618.
— — on oats in Canada, 392, 427; Portuguese W. Africa, 302; Sweden, 108; U.S.A., 178, 180, 392; control, 108, 178, 392, 427, 545; geographical distribution of, 160; physiologic races of, 549; varietal reaction to, 180, 233, 549; viability of, 540.
— *bullata*, hybridization between *U. hordei* and, 60.
— — on *Bromus marginatus* in U.S.A., 493; varietal reaction to, 124.
— *compacta* on *Lolium multiflorum* in U.S.A., 401.
— *crameri* on *Setaria italica*, geographical distribution of, 160.
— *crus-galli* on *Echinochloa colonum* in India, 493.
— *cynodontis* on *Cynodon dactylon* in Portuguese W. Africa, 302.
— *heterospora* on *Panicum maximum* in Africa, 633.
— *hordei* on barley in Canada, 392, 427; U.S.A., 392; control, 108, 392, 427, 545; factors affecting, 430; hybridization between *U. bullata* and, 60; varietal reaction to, 233; viability of, 540.
— *kolleri* on oats in Canada, 392, 427; U.S.A., 178, 180, 392; control, 178, 392, 427, 540, 545; physiologic races of, 549; varietal reaction to, 180, 233, 549; viability of, 540.
— *longissima*, heterothallism in, 72.
— *maydis* on maize in France, 325; Holland, 476; pathological stability of, in arsenic containing media, 13; production of ustilagic acid by, 448.
— *nigra* on barley in Canada and U.S.A., 392; control, 392, 545.
— *nuda* on barley in Canada, 52, 427, 485, 600; Great Britain, 324; Holland, 59; U.S.A., 485; U.S.S.R., 113; breeding against, 324, 485; control, 52, 59, 113, 427, 485, 600; technique for forecasting, 485; varietal reaction to, 113, 324, 485, 600; viability of, 540.
— *perennans* in the air, 618.

[*Ustilago*] *poae-nemoralis* on *Poa glauca* in France, 209.
— *rabenhorstiana* on *Digitaria sanguinalis* in New S. Wales, 225.
— *scitaminea* on *Saccharum spontaneum* in India, 87.
— — on sugar-cane in Brazil, 207, 401; India, 87, 298; Mauritius, 537; S. Africa, 537, 576; Southern Rhodesia, 475; control, 87, 401, 475, 537; varietal reaction to, 298, 401, 537, 539.
— *striiformis* on turf in U.S.A., 330.
— *tritici* on wheat, see under Wheat.
— *tulipae* on tulip in Greece, 256.
Ustizeain B, see Ustilagic acid.
Ustulina deusta on *Acer* in Canada, 51.
— *zonata* on cacao in New Guinea, 9.
— — on *Hevea* rubber in Indonesia, 399; Java, 513.

Vaccinium, Bacterium tumefaciens on, in Canada, 424; U.S.A., 423; strain of, 423; (?) transmission of, to aster, 423.
—, iron deficiency in, in U.S.A., 25.
—, *Pucciniastrum goeppertianum* on, in Alaska, 401.
— stunt virus in U.S.A., transmission of, by *Scaphytopius*, 131.
— *myrtillus, Podosphaera myrtillina* on, in Switzerland, 148.
— *oxycoccus*, see Cranberry.
Valeriana officinalis, cucumber mosaic virus on, in U.S.A., 273.
Valsa leucostoma on apple in Chile, 354.
— — on peach in Italy, 21.
— *sordida* on aspen in Germany, 523.
— — on poplar in Chile, 354; Germany, 523; U.S.A., 39.
— — on *Robinia pseudo-acacia* in Chile, 354.
— — on *Salix* in Chile, 354; Germany, 523.
Vancide, use of, against *Sclerotinia homoeocarpa* on *Agrostis palustris*, 331; *Sphacelotheca sorghi* on sorghum, 181; as a seed treatment for cotton, 422.
— 51, use of, against *Colletotrichum lindemuthianum* on bean, 365; damping-off of spinach, 289; as a seed treatment for cucumber, 289; soy-bean, 220; tomato, 289.
Vanda, colour breaking virus disease of, in Hawaii, 17.
—, *Glomerella* on, in U.S.A., 186.
— mosaic virus in Hawaii, 607.
—, virus disease of, in U.S.A., 491.
Varnish, moulds in, control, 396.
Vegetable marrow (*Cucurbita pepo*), *Corynespora cassiicola* on, in Germany, 584.
— — mosaic virus, electron microscopy of, 275.
— —, *Sclerotinia sclerotiorum* producing a substance toxic to, 30.
— —, *Thielaviopsis basicola* on, in Italy, 274.
— —, western cucumber mosaic virus can infect, 34.
Vegetables, damping-off of, in Germany, 584.
—, diseases of, control of seed-borne, 264; handbook on tropical, 362.
—, manganese deficiency in, in France, 95.
—, molybdenum deficiency in, in New S. Wales, 104.
—, *Penicillium* on seeds of, 265.
—, preservation of fresh, in England, 66.
Venturia, new technique for culturing, 341.
— *inaequalis* on apple, see under Apple.
— *pirina* on pear, see under Pear.
— *populina* synonym of *Endostigme populina*, 91.
Venturicide, use of, against *Venturia inaequalis* and *V. pirina*, 477.
Verbesina encelioides, Dahlia mosaic virus can infect, 121.
Verisan, use of, on groundnut seed, 532.
Verticillium in the air, 504; in India, 567.
— on filter paper, 450.
— on mushroom, control, 531, 589.
— on strawberry in England, 69.
— *albo-atrum*, effect of nitrogen on growth of, 347.
— —, inhibition of, by *Actinomyces scabies*, 203; helixin, 620.
— — in soil in the Channel Islands, 635; isolation of, 351.
— — on hops in England, 85, 143, 250; breeding against, 350.
— — on lucerne in Holland, 476.
— — on *Pelargonium hortorum* in U.S.A., 385.
— — on peppermint in U.S.A., 351, 386.
— — on potato in U.S.A., 350, 628; control, 350; varietal reaction to, 319, 350, 628.
— — on raspberry, 386; in U.S.A., 337; biotypes of, 337.
— — on rose in U.S.A., 65.
— — on strawberry in England, 69; control, 561; varietal reaction to, 319, 561.
— — on tomato in the Channel Islands, 635; Denmark, 172; England, 222; U.S.A., 290; breeding against, 259; control, 290; factors affecting, 35; varietal reaction to, 259.
— — var. *menthae* on *Mentha* in U.S.A., 576.
— — — — on *Monarda fistulosa*, 576.
— — — — on peppermint in U.S.A., 576. (See also *Verticillium albo-atrum* on.)
— *cinnabarinum*, toxicity of albidin to, 198.
— *dahliae* on *Acer japonicum* in Holland, 478.
— — on *Ailanthus* in France, 638.
— — on *Ampelopsis* and ash in Holland, 478.
— — on chicory in Belgium, 101.
— — on *Chrysanthemum* in Great Britain, 384.
— — on *Cotinus* in Holland, 478.
— — on cotton in Mozambique, 114; S. Africa, 184; control, 115.
— — on pear in Holland, 477.
— — on peppermint in Southern Rhodesia, 475.
— — on *Photinia villosa* in Holland, 478.
— — on potato in U.S.A., 350.
— — on raspberry in Holland, 478.
— — on *Rhus typhina* in Holland, 478.
— — on spinach in Denmark, 224.
— — on strawberry in England, 69.
— *glaucum* in soil in Germany, 296.
— *sphaerosporum* on *Ditylenchus dipsaci*, 64.
Vetch (*Vicia*), *Ascochyta pisi* can infect, 268.
—, lucerne dwarf virus can infect, 168.
—, pea enation mosaic virus on, in Germany, 312, 313.
Vicia, see Vetch.
— *faba*, see Broad bean.
Vigna unguiculata, see Cowpea.
— *venulosa, Uromyces pazschkeanus* on, in Sierra Leone, 476.
Vinca major, Bacterium tumefaciens on, effect of heating on, 175.
— —, lucerne dwarf virus can infect, 168.
— *rosea*, lucerne witches' broom virus can infect, 125, 332.
— —, *Phytophthora parasitica* on, in Venezuela, 380.
— —, potato witches' broom virus on, 332.
Vine (*Vitis*), *Bacterium tumefaciens* on, in Austria, 419; physiology of, 543.
— black measles in U.S.A., 590.

[Vine], *Botryodiplodia vitis* on, in Portugal, 146.
—, *Botrytis cinerea* on, in Austria, 419; Germany, 591; Switzerland, 316; U.S.A., 167; control, 316, 419, 591; effect of, on wine, 505; factors affecting, 167, 316; varietal reaction to, 316.
— chlorosis in Austria, 419; Switzerland, 274.
—, *Cladosporium herbarum* on, in U.S.A., 167.
—, coal tar fumes causing injury to, in Italy, 28.
— court-noué in Algeria, 229; Greece, 172.
—, *Cryptosporella viticola* on, in Canada, 54; S. Africa, 473.
— deficiency diseases in Switzerland, 419.
— degeneration in U.S.A., 47.
—, *Elsinoe ampelina* on, in Central Asia, 316; S. Africa, 473; Uruguay, 591; geographical distribution of, 160.
—, *Erwinia vitivora* on, in S. Africa, 473, 537.
—, *Guignardia bidwellii* on, in U.S.A., 275.
—, lucerne dwarf virus on, in U.S.A., (?) 47, 168; host range of, 168; transmission of, by *Carneocephala fulgida, Draeculacephala minerva,* and *Hordnia circellata,* 168.
—, *Macrophomina phaseoli* on, in Italy, 167.
—, *Mycosphaerella angulata* on, in U.S.A., 275.
—, *Penicillium* on, in Switzerland, 316.
—, *Physalospora baccae* on, 153.
—, *Plasmopara viticola* on, in Abyssinia, 32; Austria, 419, 536; Canada, 69; Cyprus, 48; Denmark, 172; Italy, 102; Rumania, 167; Switzerland, 275, 315, 532, 591; U.S.S.R., 167; Yugoslavia, 473, 474, 594; control, 69, 102, 167, 275, 315, 419, 473, 474, 532, 564, 591; factors affecting, 102, 536; geographical distribution of, 160; spray warnings against, 167; varietal reaction to, 69.
—, potassium deficiency in, in Germany, 592; Switzerland, 420.
—, *Pseudopeziza tracheiphila* on, in Austria, 419; Switzerland, 49, 315.
—, *Rosellinia necatrix* on, in Austria, 419.
—, *Schizophyllum commune* on, in Greece, 256.
—, *Sclerotinia sclerotiorum* producing a substance toxic to, 30.
—, *Uncinula necator* on, in Algeria, 229; Austria, 419; Cyprus, 48; Germany, 275; Italy, 6, 102; Switzerland, 223, 316; U.S.S.R., 166; control, 6, 48, 166, 223, 229, 248, 275, 316, 419; factors affecting, 6, 103.
—, virus disease of, in France, 590.
—, zinc deficiency in, control, 532.
Viola, Aphanomyces on, in England, 256.
—, *Puccinia aegra* on, in England, 256.
— *cenisia, Puccinia violae* on, in France, 209.
— *tricolor,* see Pansy.
Viridin, from *Trichoderma viride* toxic to *Ascochyta pisi,* 528.
Virus disease of *Camellia,* transmission of, 329.
— — of currants in England intercepted from Holland, 245.
— — of *Hibiscus cannabinus* in U.S.A., 489.
— — of lilac in Yugoslavia, 328.
— — of lupin in U.S.A., 240; can infect chilli and cucumber, 241.
(?) — — of maize in Italy, 13.
— — of peach in Italy, 191.
(?) — — of *Phormium tenax* in New Zealand, 319.
— — of *Vanda* in Hawaii, 17.
— diseases, control of, 447.
— — of cacao in Trinidad, 425.
— — of cassava in E. Africa, 7.
— — of cotton in the Anglo-Egyptian Sudan, 327.
— — of fruit, 533; in England, 558.
[Virus disease] of Malvaceae in the Anglo-Egyptian Sudan, 327.
— — of orchids in U.S.A., 490, 491.
— — of potato, 319; Bulgaria, 453; Germany, 347; hydroponic method of testing for, 571; transmission of, by *Myzus persicae,* 348; technique for detecting, 75.
— — of stone fruits in Switzerland, 223; U.S.A., 105; technique for detecting, 127.
— — of strawberry, technique for indexing, 441.
— — of tobacco in U.S.A., 212.
— —, technique for diagnosing by ultra-violet absorption spectra, 420.
— research, 319.
Viruses, chemical characteristics of, 196.
—, effect of ultra-violet light on, 169.
—, inoculations with, action of water in, 316.
—, insects in relation to, 168, 169.
—, inspection of cells by, 103.
—, interference phenomena between, 196.
—, nomenclature of, 221.
—, physical characteristics of, 196.
—, problems of research on, 319.
—, relation of carbohydrate level of host to infection by, 317.
—, technique for determining relative susceptibility of individual plants to, 634.
—, transmission of, 168.
Vitamin B 2, production of, by *Aspergillus niger,* 252.
Vitis, see Vine.
Vitosan, use of, against *Exobasidium vexans* on tea, 355.
Vizella bingervilliana on coffee in the Ivory Coast, 282.
Volutella on clover, lucerne, and *Medicago falcata* in U.S.A., 332; variants of, 333.
— *ciliata* on tomato in England, 222.

Wallflower (*Cheiranthus cheiri*), *Alternaria brassicicola* on, in Denmark, 224.
—, *Chrysanthemum* mosaic virus can infect, 239.
—, turnip mosaic virus can infect, 363.
— witches' broom disease in Northern Ireland, 593.
Walnut (*Juglans*), *Alternaria nucis* on, in Czechoslovakia, 40.
—, *Armillaria mellea* on, in U.S.A., 463.
—, *Bacterium tumefaciens* on, in U.S.A., 230.
—, black line disease of, in U.S.A., 463.
—, coal tar fumes causing injury to, in Italy, 28.
— collar rot in U.S.A., 463.
—, *Gnomonia leptostyla* on, in Holland, 477; Yugoslavia, 353.
—, *Microstroma juglandis* on, in Yugoslavia, 353.
—, *Physalospora juglandis* on, 153.
—, *Schizophyllum commune* on, in Greece, 256.
—, *Xanthomonas juglandis* on, in Germany, 91, 524; Greece, 256; Holland, 477; U.S.A., 152; control, 91, 152; factors affecting, 107.
Watercress (*Nasturtium officinale*), *Nasturtium* virus 1 on, in Belgium, 526; transmission of, by *Myzus persicae,* 527.
—, *Spongospora* on, in England, 256.
Water-gas tar, use of, as a timber preservative, 310.
Watermelon (*Citrullus vulgaris*), *Colletotrichum lagenarium* on, in U.S.A., 166, 542.
—, *Fusarium bulbigenum* var. *niveum* on, in Canada, 473; U.S.A., 166; factors affecting, 418; varietal reaction to, 166, 362.
— mosaic virus (?) identical with southern celery strain of cucumber mosaic virus, 542.

[Watermelon] mosaic, western, virus on cucurbitaceae in U.S.A., 368.
—, *Pseudoperonospora cubensis* on, in U.S.A., 165, 542.
—, southern squash mosaic virus can infect, 166.
Wattle, see *Acacia*.
Wax, use of, against moulds in boxes, 23.
Wettsteinina, taxonomy of, 354.
Wheat (*Triticum*), *Alternaria* on, in India, 55; Mexico, 372; U.S.A., 112.
—, — *tenuis* on, 177; in Canada, 596.
—, *Aplanobacter hordei* can infect, 180.
—, *Ascochyta graminicola* on, 58.
—, *Aspergillus* on, in U.S.A., 112.
—, — *candidus* and *A. flavus* on, in U.S.A., 112.
—, — *fumigatus* on stored, in Canada, 599.
—, — *glaucus*, *A. niger*, *A. ochraceus*, *A. tamarii*, and *A. versicolor* on, in U.S.A., 112.
—, bacteria on, in Canada, 52, 599; England, 177; U.S.A., 112; antagonism of, to *Helminthosporium sativum*, 52.
—, barley yellow dwarf virus on, in U.S.A., 233.
—, Basidiomycete on, 52.
—, *Botrytis cinerea* on, 177.
— brown glume disease in Germany, 485.
—, *Calonectria nivalis* on, 58; in Sweden, 103.
—, *Cercosporella herpotrichoides* on, in Denmark, 172; England, 170, 279; Germany, 548; Greece, 256; control, 429; factors affecting, 279, 548.
—, *Cladosporium* on, control in U.S.S.R., 130.
—, — *herbarum* on, 177.
—, *Claviceps purpurea* on, in France, 323.
—, *Diplodina* on, 58.
— diseases in U.S.S.R., 105; varietal reaction to, 105.
—, endotrophic fungi in roots of, in U.S.S.R., 623.
—, *Erysiphe graminis* on, in Switzerland, 484; effect of cadmium salts on susceptibility to, 484; physiology of, 547.
—, factory gases injurious to, in Germany, 571.
— foot rot in Argentina, 343; India, 594; breeding against, 547; control, 343, 594.
—, fungi in relation to heating of stored, in U.S.A., 112, 599.
—, *Fusarium* on, 177; in Canada, 50, 279, 597; Mexico, 372; U.S.S.R., 130; control, 130; technique for testing varietal reaction to, 279; varietal reaction to, 50.
—, — *culmorum* on, 52.
—, — *orthoceras* var. *longius*, *F. sambucinum* and *F. tricinctum* on, 58.
—, *Gibberella zeae* on, 58; in (?) Canada, 392; Japan, 548; Tanganyika Territory, 226; (?) U.S.A., 392; control, 392, 549; spore dispersal in, 549.
—, *Helicobasidium mompa* on, immunity to, 546.
—, *Helminthosporium* on, in Canada, 50; Mexico, 372.
—, — *gramineum* on, 58.
—, — *sativum* on, in Canada, 50, 52, 279, 596; U.S.A., 179; antagonism of bacteria to, 52; *Cochliobolus sativus* perfect state of, 50; control, 50, 545; effect of 2,4-D on, 179; longevity of, 596; varietal reaction to, 279, 596.
—, — *tritici-vulgaris* on, in U.S.A., 323.
—, *Hendersonia aberrans* on, 58.
—, (?) *Heterosporium graminum* on, in Greece, 235.
—, *Leptosphaeria clavata*, *L. eustomoides*, *L. linearis*, *L. nigrans*, and *L. recutita* on, 58.
— lodging, varietal reaction to, 105, 228.
[Wheat], mixed infection of, by cereal root rotting fungi, 57.
(?) — mosaic virus on *Aegilops* in U.S.A., 177.
— — — on *Agropyron*, 235.
(?) — — — on *Bromus japonicus*, *Digitaria ischaemum*, *Elymus*, *Eragrostis trichodes*, and *Hordeum* in U.S.A., 177.
— — — on rye and *Secale*, varietal reaction to, 235.
— — — on wheat in U.S.A., 323, 549; strain of, 12; technique for inoculating, 12; varietal reaction to, 235, 323, 549.
—, moulds in, in Canada, 599; U.S.A., 112, 345; U.S.S.R., 130; control, 130.
—, *Mucor* on stored, in Canada, 599.
—, (?) *Mycogone* on, 177.
—, nickel toxicity to, in Scotland, 631.
—, *Ophiobolus graminis* on, 58; in England, 170; Holland, 476; S. Australia, 429; Sweden, 103; breeding against, 548; control, 429; factors affecting, 429; varietal reaction to, 548.
—, — *herpotrichus* on, 58.
—, *Penicillium* on, in U.S.A., 112.
—, — *melinii* and *P. viride-dorsum* on stored, in Canada, 599.
—, *Periconia pycnospora* in rhizosphere of, 634.
—, *Phoma* on, 58.
—, *Pleospora herbarum* on, 177.
—, potassium deficiency in, chlorine in relation to, 400.
—, *Puccinia* on, in Colombia, 428; breeding against, 105.
—, — *dispersa* on, 376.
—, — *glumarum* on, in Abyssinia, 32; Colombia, 371; Denmark, 109; England, 598; Germany, 483; India, 540; Kenya, 481; Sweden, 109; U.S.S.R., 111; breeding against, 110, 111, 428, 547; physiologic races of, 598; silicic acid deposits in varieties resistant to, 483; technique for detecting symptoms of resistance to, 110; varietal reaction to, 109, 110, 111, 371, 481, 483, 547, 598.
—, — *graminis* on, 278; in Argentina, 276, 378; Canada, 279; Colombia, 371; Cyprus, 109; Denmark, 171, 233; Ecuador, 371; Finland, France, and Germany, 233; Great Britain, 234; Guatemala, 55; India, 540, 594; Kenya, 173, 481; Mexico, 371, 372, 482; Portuguese W. Africa, 302; Queensland, 597; S. Australia, 598; Spain, 277, 377; Switzerland, 234; U.S.A., 277; barberry eradication against, 234; breeding against, 109, 110, 234, 428, 546, 547; control, 371; effect of, on yield, 540; factors affecting, 234; geographical distribution of, 377; germination of uredospores in, 72; legislation against, in Finland, 234; physiologic races of, 173, 234, 277, 371, 377, 378; technique for testing varietal reaction to, 279; varietal reaction to, 55, 59, 109, 110, 234, 276, 277, 371, 377, 378, 481, 482, 546, 547, 594, 597, 598.
—, — *triticina* on, in Argentina and Brazil, 10; Canada, 279; Chile, 10; Colombia, 371; Denmark, 109; Germany, 482; Guatemala, 55; Kenya, 481; Mexico, 10, 371; Portuguese W. Africa, 302; Uruguay and U.S.A., 10; breeding against, 110, 428, 547; control, 371, 483; effect of insecticides on susceptibility to, 482; factors affecting, 11, 176; physiologic races of, 10, 11; technique for testing varietal reaction to, 279; varietal reaction to, 10, 11, 55, 109, 110, 371, 481, 483, 546, 547, 597.
—, *Pullularia pullulans* on, 177.
—, *Pyrenophora trichostoma* on, 58.

[Wheat], *Pythium arrhenomanes* on, in Canada, 61.
—, *Rhizoctonia* on, in Mexico, 372.
—, *Septoria nodorum* on, in Canada, 596; Germany, 536; longevity of, 596.
—, — *tritici* on, in Tanganyika Territory, 225.
—, *Streptomyces* on stored, in Canada, 599.
—, *Tilletia brevifaciens* on, in Germany and U.S.A., 378; control, 547.
—, — *caries* on, in Austria, 378; Canada, 279, 392, 428; France, 484; Germany, 278; Holland, 479; S. Australia, 597; Sweden, 108; Switzerland, 533; U.S.A., 58, 177, 178, 392; Yugoslavia, 323; control, 26, 59, 108, 110, 130, 177, 178, 234, 278, 392, 428, 484, 533, 545, 547, 565, 597; nutrition of, 322; physiologic races of, 322; technique for testing varietal reaction to, 279; varietal reaction to, 103, 178, 233, 322, 479, 546, 598.
—, — *foetida* on, in Algeria, 228; Canada, 279, 392, 428; U.S.A., 58, 177, 178, 392; Yugoslavia, 323; control, 26, 108, 177, 178, 228, 392, 428, 545; technique for testing varietal reaction to, 279; varietal reaction to, 59, 103, 228, 233, 546.
—, — *intermedia* on, in Yugoslavia, 323.
—, — *triticoides* on, in Yugoslavia, 323.
—, *Tritirachium album* in rhizosphere of, 634.
—, *Typhula* on, in Canada, 103.
—, — *ishikariensis* and *T. itoana* on, in Japan, 177.
—, *Urocystis tritici* on, in U.S.A., 178; breeding against, 428; physiologic races of, 59.
—, *Ustilago tritici* on, in Abyssinia, 32; Canada, 279; Germany, 483; Holland, 59; U.S.A., 111, 428; U.S.S.R., 11; breeding against, 428, 546, 547; control, 59, 111, 428, 483; physiologic races of, 111, 538; technique for culturing, 11; testing varietal reaction to, 279; varietal reaction to, 111, 228, 538, 546, 547; viability of, 540.
—, *Wojnowicia graminis* on, 58.
W-nitro-styrene, effect of, on *Venturia inaequalis*, 341.
Wojnowicia graminis on wheat, 58.
Wolman salts, use of, as a timber preservative, 2, 95, 584.
Wood pulp, *Ceratocystis piceae*, *Coniophora puteana*, and *Fomes annosus* on, effect of bacterium culture filtrates on, 155, 156.
— —, fungi on, in Norway and Sweden, 346.
— —, *Merulius lacrymans* on, effect of bacterium culture filtrates on, 156.
— —, moulds on, in Finland, 155.
— —, *Penicillium conditeanum* and *P. roqueforti* on, in Norway and Sweden, 346.
— —, *Phialophora richardsiae* on, effect of bacterium culture filtrates on, 155.
— —, preservation of, in Finland, 74.
Wool, microbiological degradation of, 622.

Xanthium, *Colletotrichum xanthii* on, in New S. Wales, 447.
Xanthomonas, antagonism of actinomycetes to, 545.
—, inhibition of, by aureomycin, 54, 480; polymyxin, 480; terramycin, 54, 480.
— *albilineans* on sugar-cane in Brazil, 375; British Guiana, 144, 145; Mauritius, 537; Queensland, 352; control, 144; effect of, on yield, 145; factors affecting, 145, 352; losses caused by, 352; transmission of, by beetles and rats, 145; varietal reaction to, 144, 537.
— *alfalfae* and *X. badri*, antagonism of actinomycetes to, 545.
[*Xanthomonas*] *begoniae*, action of, on pectate gel, 9.
— — on *Begonia* in India, 107.
— *beticola*, inhibition of, by chloramphenicol, polymyxin, and streptomycin, 480; by circulin, 276.
— *betlicola*, antagonism of actinomycetes to, 545.
— — on *Piper betle* in India, 107.
— *cajani*, antagonism of actinomycetes to, 545.
— — on pigeon pea in India, 6.
— *campestris*, action of, on pectate gel, 9.
— —, antagonism of actinomycetes to, 545.
— —, inhibition of, by circulin, 276; helixin, 620; ustilagic acid, 448.
— — on cabbage in U.S.A., 96; (?) U.S.S.R., 157; factors affecting, 417; losses caused by, 157; technique for inoculating, 96; varietal reaction to, 96, 541.
— — on cauliflower in Greece, 256; technique for inoculating, 96.
— — on crucifers in U.S.A., 585.
— —, production of protopectinase by, 230.
— *carotae* can infect potato, swede, and turnip, 321.
— — on carrot, physiologic study on, 321.
— *cassiae* on *Cassia tora* in India, 86.
— *citri*, action of actinomycetes on, 545; of, on pectate gel, 9.
— — on citrus, elimination of, from Mozambique, 183.
— — on grapefruit, lemon, and orange in Fiji, 551.
— *clerodendri* on *Clerodendron phomoidis* in India, 544.
— *desmodii* and *X. desmodii-gangeticii*, antagonism of actinomycetes to, 545.
— *holcicola* on sorghum and Sudan grass in S. Africa, 536.
— *juglandis* on walnut in Germany, 91, 524; Greece, 256; Holland, 477; U.S.A., 152; control, 91, 152; factors affecting, 106, 107; variation in, 106.
— *lawsoniae*, antagonism of actinomycetes to, 545.
— — on *Lawsonia inermis* in India, 479.
— *malvacearum*, action of, on pectate gel, 9.
— —, antagonism of actinomycetes to, 545.
— — on cotton, see under Cotton.
— —, production of protopectinase by, 230.
— *manihoti* on cassava in Brazil, 419, 589; varietal reaction to, 419.
— *oryzae* on rice, 458; in Japan, 205.
— *phaseoli* on bean in U.S.A., 3, 219, 416, 468; control, 220, 468; production of protopectinase by, 230; technique for inoculating, 219; toxicity of circulin to, 276; varietal reaction to, 219, 266; wilt-inducing polysaccharides from, 55.
— —, use of, in testing fungicides, 26.
— — var. *fuscans* on bean, in U.S.A., 3; varietal reaction to, 266.
— — var. *sojense*, on soy-bean in U.S.A., (?) 267, 367; antagonism of actinomycetes to, 545; genetics of, 163; technique for preserving cultures of, 313; varietal reaction to, 163, 422.
— *poinsetticola*, antagonism of actinomycetes to, 545.
— — on *Euphorbia pulcherrima* in India, 479.
— *pruni*, bacteriophage of, 423.
— —, inhibition of, by neomycin, 480.
— — on peach in U.S.A., 389; control, 72; metabolism of, 128.
— — on plum in New Zealand, 21.
— *ricinicola*, antagonism of actinomycetes to, 545.

[*Xanthomonas ricinicola*] on *Ricinus communis* in S. Africa, 536.
— *secalis*, inhibition of, by polymyxin, 480.
— *sesbaniae* on *Sesbania aegyptiaca* in India, 545.
— *solanacearum*, see *Pseudomonas solanacearum*.
— *stewarti* on maize in U.S.A., 61; technique for determining distribution of, 62.
— *stizolobiicola*, antagonism of actinomycetes to, 545.
— — on *Mucuna deeringiana* in India, 107.
— *tamarindi*, antagonism of actinomycetes to, 545.
— — on *Tamarindus indica* in India, 479.
— *translucens*, production of protopectinase by, 230.
— — var. *cerealis*, effect of ustilagic acid on, 448.
— *undulosa*, inhibition of, by polymyxin, 480.
— *uppalii*, antagonism of actinomycetes to, 545.
— *vasculorum* on sugar-cane in Mauritius, 537; not found at Mossman in Queensland, 352.
— — f. *zeae* on maize in S. Africa, 536.
— *vesicatoria*, antagonism of actinomycetes to, 545.
— —, inhibition of, by neomycin, polymyxin, streptomycin, and terramycin, 480.
— — on tomato in Israel, 362; U.S.S.R., 213.
— *vignicola*, antagonism of actinomycetes to, 545.
— — on cowpea in U.S.A., 45.
Xylaria polymorpha, antagonism of, to basidiomycetes, 583.
— *thwaitesii* on *Hevea* rubber in Indonesia, 399.

Yeasts in the air, 504; in the Arctic, 566.
— in canned spices, edible colloidal gums and flour, 505.
—, mating types in, 460.
— on apple in England, 570.
— on timber in Sweden, 42.
—, taxonomy of, 354, 567.
Yellow dot virus of bean and lucerne in U.S.A., ? a strain of lucerne mosaic, 366.
Yew (*Taxus*), *Phytophthora cinnamomi* on, in U.S.A., 152.

Zantedeschia aethiopica, *Erwinia aroideae* on, in Italy, 17.
Z–C, use of, against tomato diseases, 303.
Zephyranthes, (*Stromatinia*) *narcissi* on, in Canada, 607; synonymy of, 607.
Zerlate, use of, against *Botrytis tulipae* on tulip, 479; *Fusarium dianthi* on carnation, 227; *Phomopsis dauci* on carrot, 163; *Phytophthora infestans* on tomato, 35, 372; *Podosphaera leucotricha* on pear, 242; tomato diseases, 303; *Venturia pirina*, 242.
Zeuzera pyrina, association of, with *Nectria galligena*, 126.
Zibimate dust, use of, against *Dactylium*, *Mycogone perniciosa*, and *Verticillium* on mushroom, 531.
Zinc chloride, use of, against *Erwinia amylovora* on pear, 242; zinc deficiency in lucerne, 610; as a timber preservative, 2, 156, 310, 311.
— —, chromated, use of, as a seed treatment for maize, 14; as a timber preservative, 2, 310, 311.
— —, copperized, chromated, use of, as a timber preservative, 2.
— deficiency in apple in Canada, 50, 103; Denmark and France, 494; in bean in U.S.A., 141; (?) cacao in Ceylon, 9; cherry in Holland, 494; (?) Switzerland, 223; U.S.A., 68; citrus in India, 541; flax in Australia, 117; Western Australia, 185; fruit trees in Germany, 494; lucerne in U.S.A., 610; maize in U.S.A., 141; oats, 188; peach in Italy, 191; pear in Holland, 494; *Phleum pratense*, 188; pineapple in French Guinea, 616; tomato in U.S.A., 462; vine in Australia, 532.
[Zinc] ethylxanthate, use of, against *Tilletia caries*, 484.
— fluosilicate, use of, as a timber preservative, 525.
—, function of, in plant metabolism, 400.
— in soil, technique for determining, 32.
— mercury chromate, use of, as a seed treatment for maize, 14.
— meta-arsenite, use of, as a timber preservative, 2, 310.
— naphthenate, use of, as a timber preservative, 2, 311.
— oxide, use of, as a seed treatment for spinach, 391; on citrus in relation to leaf drop, 183; with copper-8-oxyquinolinolate, 136.
— silicofluoride, use of, as a timber preservative, 584.
— sulphate, use of, against *Peronospora destructor* on shallot, 478; *Phytophthora infestans* on potato, 572; potato tuber rot, 53; *Pseudomonas syringae* on citrus, 63; *Sphaerotheca humuli* on *Rubus flagellaris*, 288; *Xanthomonas phaseoli* on bean, 469; zinc deficiency in apple, 50, 494; bean, 141; cherry, 494; lucerne, 610; maize, 141; pear, 494; pineapple, 616; tomato, 462; vine, 532; with dithane D-14, 35; nabam, 226.
Zineb, use of, against *Alternaria solani* on tomato, 521; *Botrytis gladiolorum* on *Gladiolus*, 490; *Colletotrichum phomoides*, 521; *Curvularia lunata* on *Gladiolus*, 490; *Dactylium* and *Geotrichum* on mushroom, 589; *Helminthosporium turcicum* on maize, 236; *Mycogone perniciosa* on mushroom, 589; *Peronospora antirrhini* on *Antirrhinum majus*, 553; *P. sparsa* on rose, 608; *Phytophthora infestans* on tomato, 226, 521; *Pseudomonas lacrymans* on cucumber, 273; *Verticillium* on mushroom, 589; zinc deficiency of tomato, 462.
Zinnia, *Chrysanthemum* mosaic virus can infect, 239.
—, cucumber mosaic virus on, 121, 284, 435.
—, tobacco ring spot virus can infect, 435.
—, tomato aspermy virus on, in U.S.A., 284.
— *elegans*, *Alternaria zinniae* on, in U.S.A., 239; Yugoslavia, 594.
— —, bean yellow dot virus can infect, 266.
— —, *Dahlia* mosaic virus can infect, 121.
— —, red currant ring spot virus can infect, 245.
Ziram injury to apple, 341; to tomato, 522.
—, use of, against *Alternaria solani* on tomato, 521; *Cladosporium effusum* on pecan, 541; *Colletotrichum phomoides* on tomato, 521; *Podosphaera leucotricha*, 290; *Pseudomonas lacrymans* on cucumber, 273; *Venturia inaequalis*, 290, 341; *Venturia pirina*, 497.
Zizyphus jujuba, *Oidiopsis* on, in India, 55.
Zoopage thamnospira on nematodes in Great Britain, 16.
Zosmenus quadratus transmitting beet crinkle virus, 161.
Zygorrhynchus in soil in England, 142.
—, (?) *Septonema* on, 136.
Zygosaccharomyces lactis, mating types in, 460.

PRINTED IN
GREAT BRITAIN
AT THE
UNIVERSITY PRESS
OXFORD
BY
CHARLES BATEY
PRINTER
TO THE
UNIVERSITY